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Minerals, Policy and Planning

Survey of decorative pebble, cobble and boulder resources from selected Crown lands in New Brunswick

Tim C. Webb

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Minister of Natural Resources

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2004-1 Potential resources of decorative pebbles, cobbles and boulders from selected Crown lands in New Brunswick

Abstract

In recent years New Brunswick's natural stone resources have received little more than casual interest as a viable development alternative within the province's mineral industry. Given what appears to be expanding interest in natural stone materials for landscaping and related decorative applications and New Brunswick's geologic diversity, it would seem reasonable to conclude that opportunities may exist for a wide range of marketable rock products. One potential resource consistently overlooked from this perspective are various gradations of pebbles, cobbles and boulders of appealing color, texture and shape, that are found in numerous deposits of granular glacial aggregate. In Consideration of development alternatives for these proposed decorative rock materials, deficiencies pertaining to the regional distribution of potential resources and useful qualitative data relative to their aesthetic properties are acknowledged. To stimulate entrepreneurial interest and assist in establishing a foundation for an alternative mineral resource enterprise, over 70 Crown land sites of pebbles, cobbles and boulders from north central and southwestern New Brunswick have been catalogued, and their development potential rated accordingly.

Résumé

Ces dernières années, les ressources de pierres naturelles du Nouveau-Brunswick ont suscité à peine plus qu'un intérêt fortuit à titre de solution de rechange de développement durable au sein de l'industrie minérale de la province. Vu l'intérêt semble-t-il grandissant à l'égard de l'emploi des pierres naturelles comme matériaux dans l'aménagement paysager et les utilisations décoratives connexes, et vu la diversité géologique du Nouveau-Brunswick, il semblerait raisonnable de conclure qu'il pourrait exister des possibilités pour un vaste éventail de produits commercialisables de roche. Les galets, les cailloux et les blocs rocheux de granulométries variées et de couleurs, textures et formes attrayantes qu'on trouve dans de nombreux gîtes d'agrégats glaciaires granulaires constituent une source éventuelle de tels produits qu'on néglige constamment. Lorsqu'on considère des solutions de mise en valeur de rechange à ces matériaux rocheux décoratifs proposés, on constate les lacunes existant dans la répartition régionale des ressources éventuelles et des données qualitatives utiles au sujet de leurs propriétés esthétiques. Pour stimuler l'intérêt des entrepreneurs et faciliter l'établissement de l'assise d'une entreprise de ressources minérales de rechange, on a répertorié plus de 70 terres de la Couronne renfermant des galets, des cailloux et des blocs rocheux dans le centre-nord et le Sud-Ouest du Nouveau-Brunswick, et on a coté leur potentiel de mise en valeur en conséquence.

Survey of decorative pebble, cobble and boulder resources from selected Crown lands in New Brunswick

Introduction:

New Brunswick is characterized by a geological complexity that is reflected in a wide range of potentially useful earth materials. Geologic diversity within a relatively small area, strategically situated adjacent a very large consumer base in northeastern North America not only offers a degree of stability to established industrial mineral mining and processing operations, but also encourages exploring somewhat unconventional resource development possibilities.

During visits to several of New Brunswick's Crown-owned sand and gravel pits in 2001, piles of colorful, medium- to large-size pebbles, cobbles and boulders were often observed around excavations that are materials left behind following the processing of finer gravel fractions. The wide range of contrasting colors, textures, shapes and sizes of displaced and insitu granular aggregate materials at some of these pit locations highlighted their potential use in landscaping and related decorative applications. It was determined that these "forgotten" resources might represent material of some value and should be pursued as a reasonable alternative development opportunity. To create awareness and assist in promoting development interests in these underdeveloped resources, it was decided to select a number of existing excavations and catalogue aesthetically appealing, decorative rock.

Scope:

The widespread regional nature of granular aggregate resources throughout New Brunswick presented itself as a formidable challenge in preparing a province-wide resource assessment of potentially decorative rock materials. Considering the size of the undertaking, it was decided to limit the investigation to areas where: 1) the geological diversity of potential source rock of contrasting color and texture would be regionally reflected in local granular aggregate deposits; 2) reasonable resource access and availability of lands for development purposes could be expected and 3) primary raw material costs could be minimized. With geologic diversity having a direct influence on aesthetic quality of granular materials considered for decorative purposes, the study was regionally restricted to a V-shaped, 20 000 square kilometer area extending from north-central to southwestern New Brunswick and the eastward, adjacent the Bay of Fundy coastline (Figure 1). This region revealed an assortment of pebbles, cobbles and

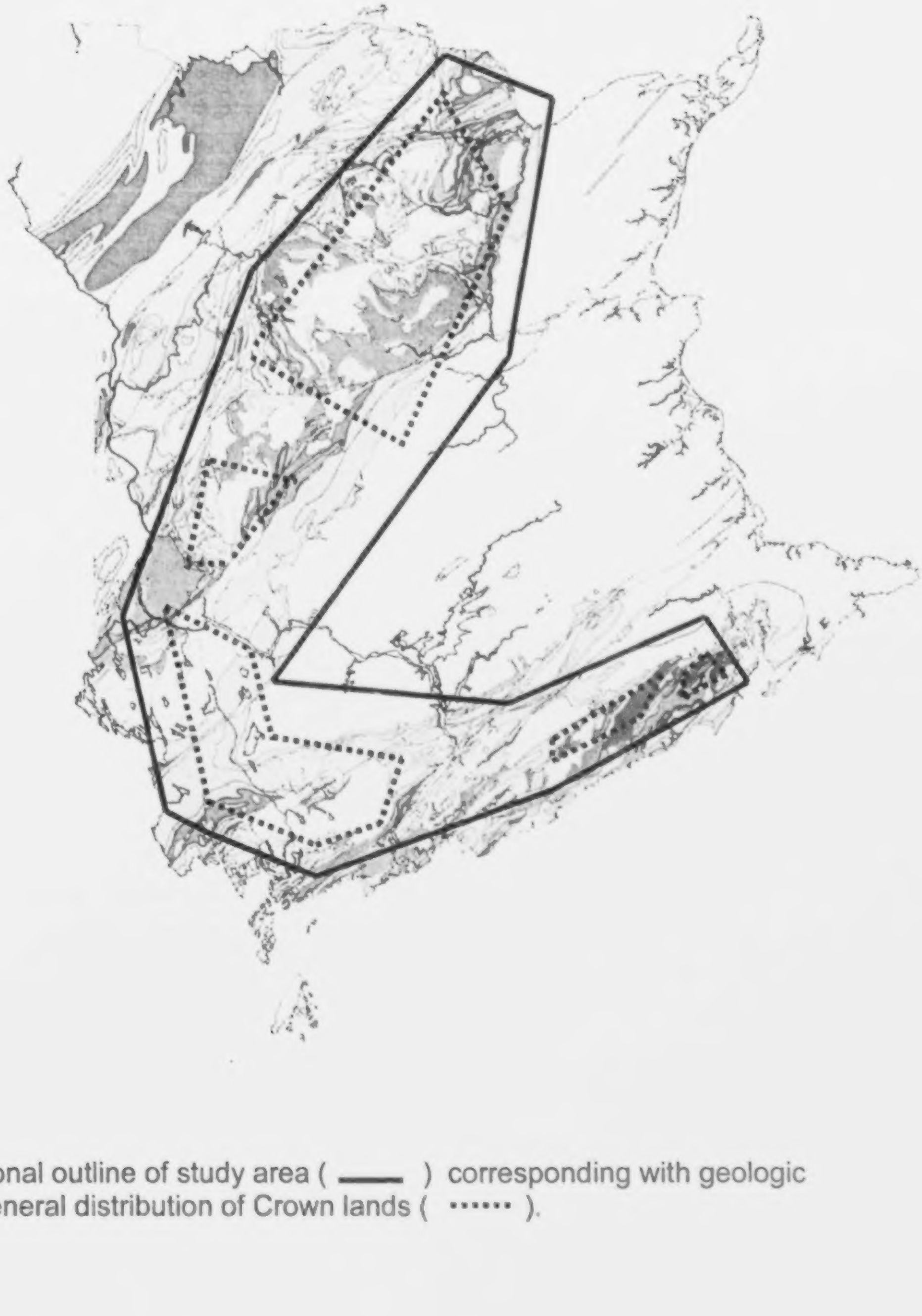

Figure 1. Regional outline of study area (——) corresponding with geologic diversity and general distribution of Crown lands (······).

boulders associated with deposits of glacial fluvial outwash, ice contact drift, and ablation till reflecting nearby bedrock terrains dominated by colorful granite and other intrusive and meta-sedimentary rocks. To minimize the impact of resource allocation issues and primary raw materials costs, it was decided to further restrict the survey to aesthetically favorable granular materials occurring on Crown lands, managed by the Department of Natural Resources. Locally these lands maintain a fairly diversified resource potential within the chosen study area. In most cases they are fairly remote from areas of potential land use conflict, and depending on circumstances, it is possible to acquire a development right to a proposed resource (s) through an established permitting or leasing procedure (Appendix A). Costs of materials are considered stable and reasonable, based on a fixed royalty rate.

The application of this selection criteria resulted in the recognition of sixty (60) potential resource areas for pebbles, cobbles and boulders (Figure 2 and Plate 2004-1). Prospective sources of these materials were restricted to granular aggregate materials from fifty-four (54) Crown-owned pits, while six (6) unusual accumulations of large boulders were noted from quarries, natural boulder fields and stock piles near former construction sites, all on Crown lands. With the exception of boulder sites, most granular materials were sampled and qualitatively classified with respect to particle size, average roundness and sphericity, color and texture.

Using a common particle size classification provided by the Wentworth's grade scale, composite granular materials were separated into 5 classes: large pebble, very large pebble, small cobble, large cobble and boulder (Table 1). A chart (Figure 3) was used to visually estimate roundness and sphericity of particles while a Rock Color Chart published by the Geological Society of America (1991) provided a standardized approach to determining color. Particles were also classified according to textural contrasts and general rock types.

Regional distribution of potential decorative pebble, cobble and boulder materials from selected Crown lands in New Brunswick

Prospective Crown land sources of decorative pebbles, cobbles and boulders are spread out over 23 NTS 1:50 000 scale map sheets (Figure 4) within the selected study area. Almost 60% of proposed sites are concentrated in the central portion of the 21 G map area. In this region, the Canterbury (21G/14) and McDougall Lake (21 G/07) map sheets are principal interest in this regard, accounting for almost 70% of the regional distribution. Other regions noted for this material is the southeastern corner of 21 J map area with 70 % of the sites of interest identified on the eastern half of the Tuadook Lake (21 J/16) and eastern half of the McKendrick Lake (21 J/16) map sheets.

With qualitative information gathered for over 21 pit sites, the southern half of York County ranks first among the Provinces counties in terms of the number of

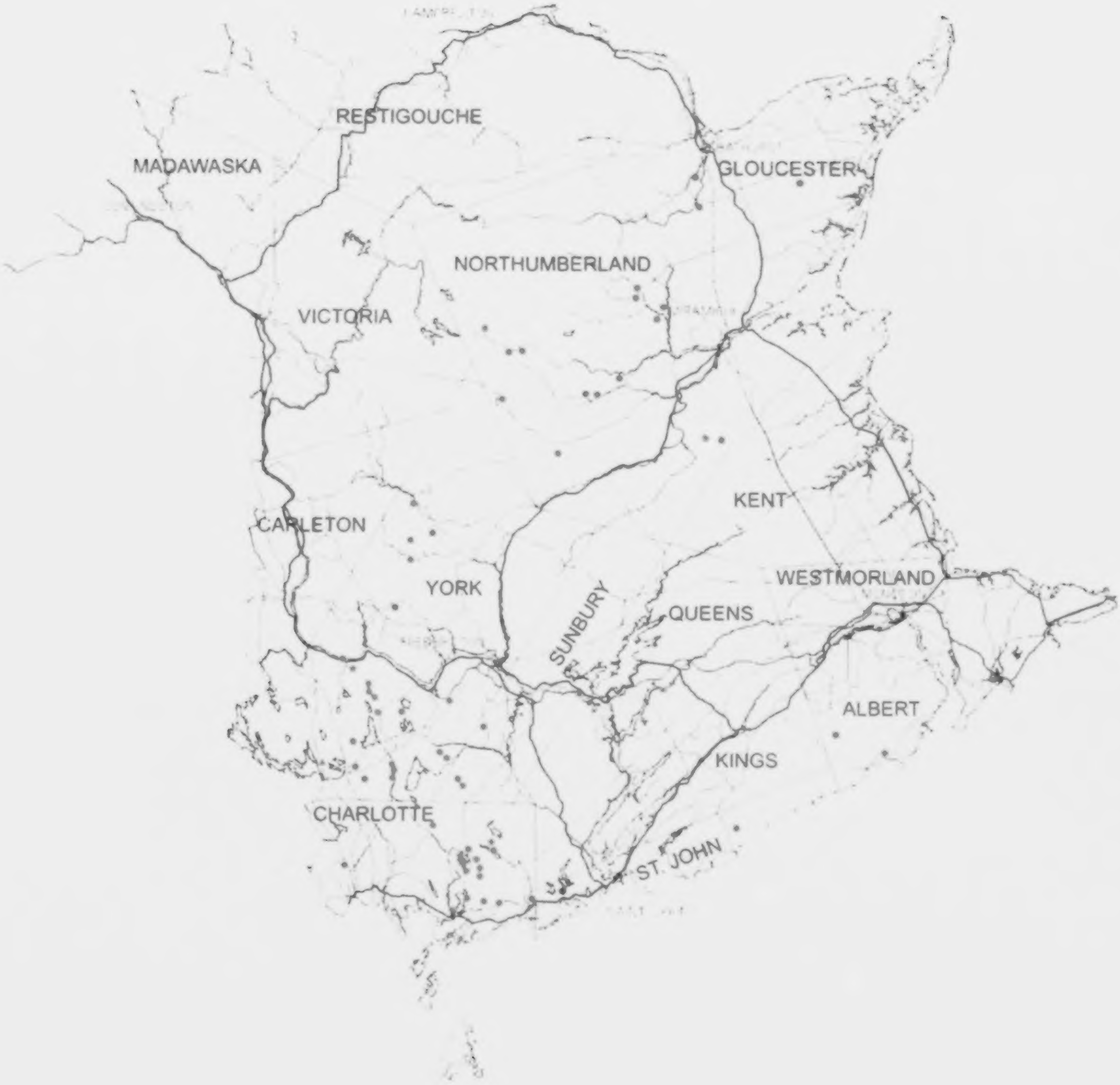

Figure 2. Regional distribution of selected Crown land prospects for decorative pebbles, cobbles and boulders

Table 1. Wentworth classification system used to measure particle size distribution of granular materials sampled from selected Crown land pits

Class	Grade Limits (diameters in mm / inches)	Name
1	16-32 / 0.63-1.25	Large Pebble
2	32-64 / 1.25-2.50	Very Large Pebble
3	64-128 / 2.50-5.04	Small Cobble
4	128-256 / 5.04-10.08	Large Cobble
5	>256 / >10.08	Boulder

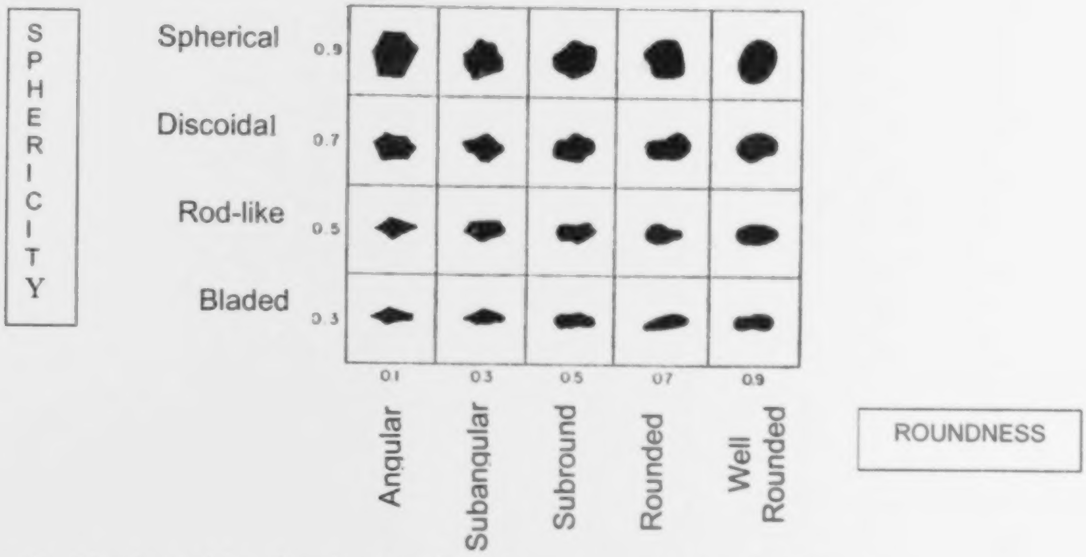

Figure 3. Chart used for visual estimation of roundness and sphericity of particles (modified from Krumbein, W.C. and Sloss, L.L. 1963. Stratigraphy and Sedimentation, 2nd edition, W.H. Freeman and Company, London, p. 111).

potential sites for decorative materials followed by the eastern half of Charlotte and the central part of Northumberland counties (Figure 5). Parts of York and Charlotte are particularly well represented by several prospects featuring colorful stone of contrasting textures and a wide assortment of particle sizes all

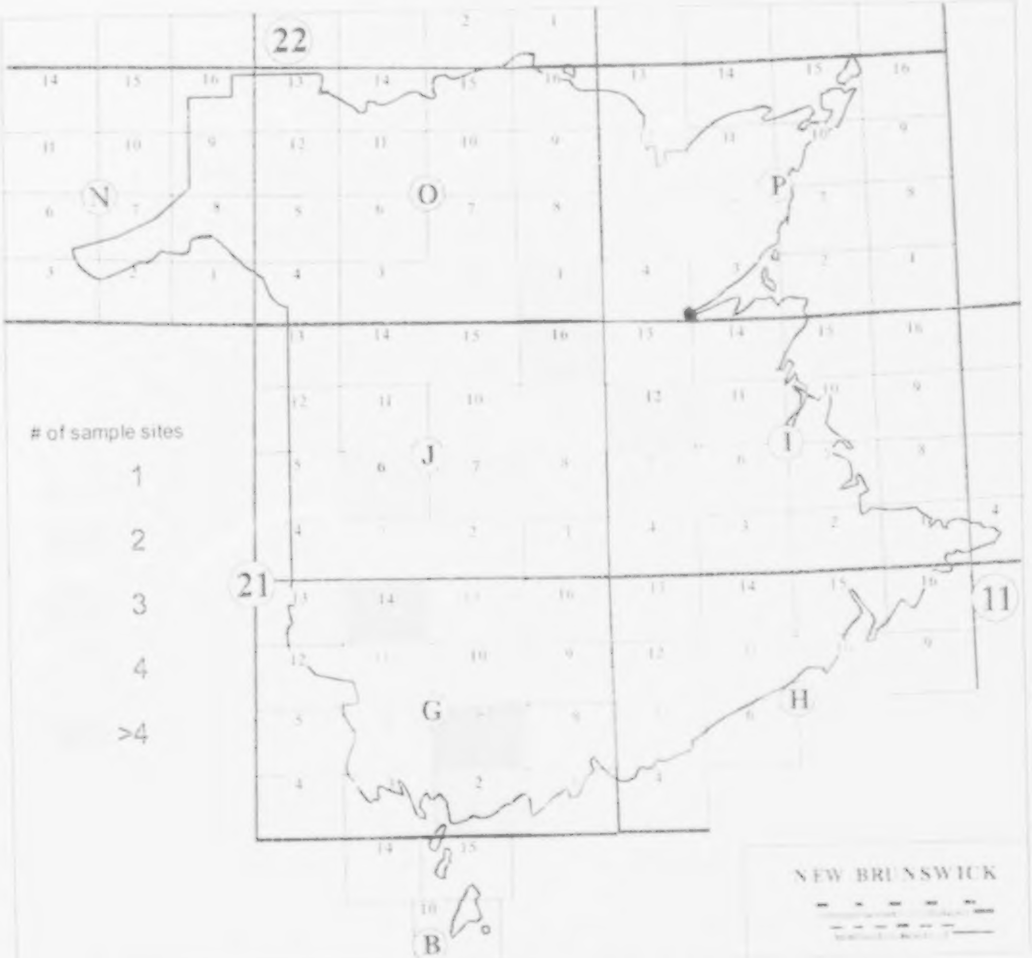

Figure 4. Distribution of prospective Crown land resources of decorative pebbles, cobbles and boulders in New Brunswick, by number of sample sites per 1:50 000 scale, NTS map sheet.

occurring relatively close to one another, relatively close to major development infrastructure and relatively well positioned regarding regional domestic markets and export markets in the northeast U.S. and elsewhere.

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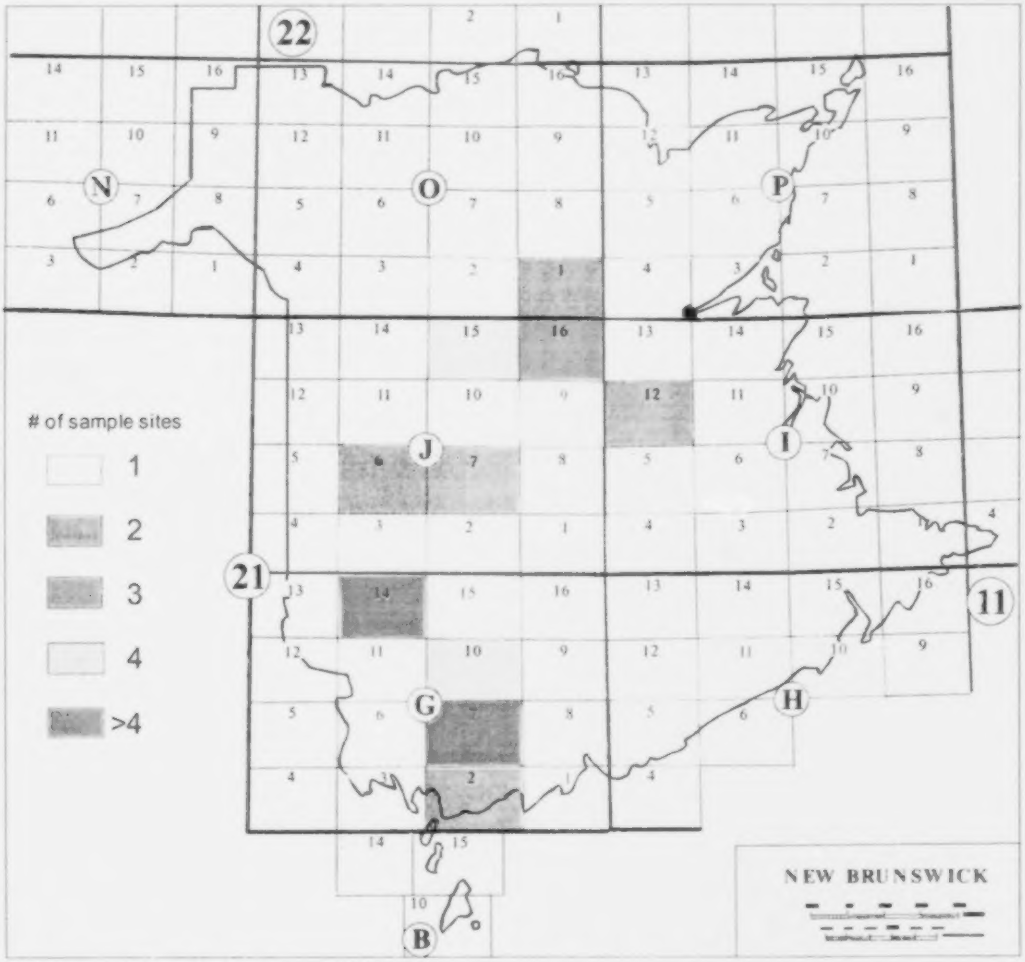

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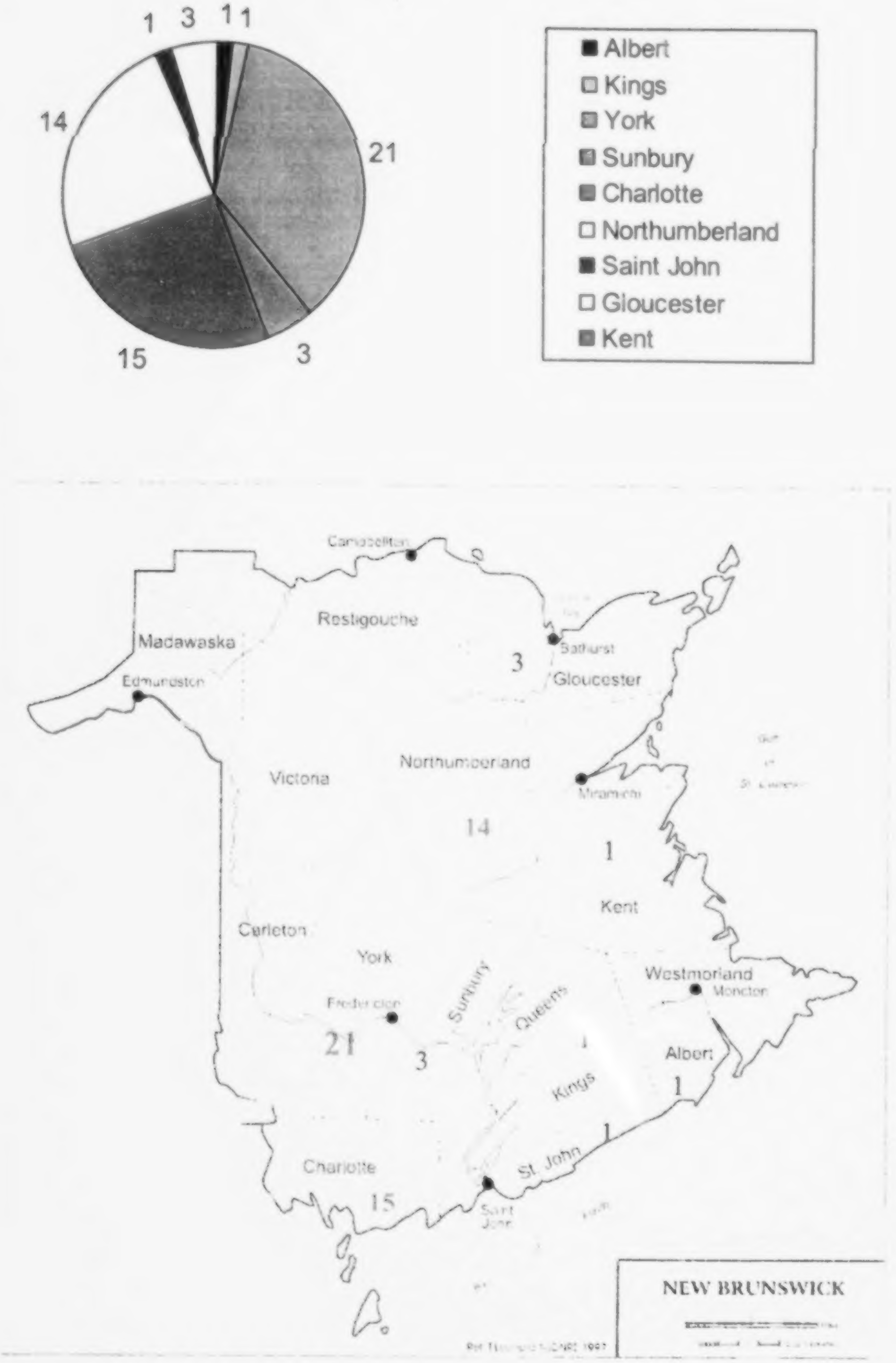

Figure 5. Distribution of prospective Crown land resources of decorative pebbles, cobbles and boulders in New Brunswick, by number of sample sites per county.

A catalogue summarizing qualitative and related information for prospective decorative materials observed during the survey, are attached as Appendix B. Included are data related to: site location, particle size distribution, roundness, color and textural contrast particles along with accompanying photos displaying both insitu and naturally graded granular material (i.e. in scree piles at the base of exposed pit faces). To enhance the qualitative analysis and aesthetic appeal of the proposed material, selected photos have been digitally recorded to a compact disc and are presented as Appendix C.

Assessment criteria for development of Crown land decorative pebble, cobble and boulder prospects in New Brunswick

In this study materials from selected Crown land pits have been classified and rated according to parameters considered useful in a general assessment of their development potential for decorative purposes. Rated parameters include the following:

- particle size (% of sampled material > 25.4 mm)
- % very large pebble, large pebble, small and large cobble and small boulder
- % rounded to well rounded and discoidal to spherical shapes
- number of different colors and textures
- extent of the resource and access
- distance to major markets and nearest infrastructure

Qualitatively, an ideal deposit for these types of decorative rock materials would be one characterized by a large resource dominated by coarse materials of almost equal proportions of large pebble to cobble. A large percentage of rounded and spherical shaped particles of many different colors and textures is also seen as a favourable feature. In addition, a resource that is easily accessible situated near major markets and infrastructure is viewed as having certain development advantages.

The importance of these parameters to the eventual development of a selected pebble, cobble and boulder resource has been assessed objectively through the assignment of numerical ratings on a scale of one to five. Parameters considered development deterrents have been assigned low rating values of 1 or 2, while those perceived to have a more positive influence are identified by higher values of 4 or 5 (Table 2). Individual rating values have been totalled to establish an overall development priority for each prospective site. Although sites with the highest totals may at first appear to have the best potential, individual parameter ratings must be carefully considered in the complete evaluation process. To illustrate inconsistencies in the proposed rating scheme, a site may achieve a very high total rating score qualitatively but is found to be

Table 2. Explanation of priority rating scheme for decorative pebbles and cobbles from selected Crown land pits and related excavations in New Brunswick

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	>65
% Cobble	<10	10-20	20-30	30-40	>40
% Very large pebble	>40	30-40	15-30	10-15	<10
% Large pebble	>40	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	>50
# of colors	<2	-	2-4	-	>4
# of textures	<2	-	2-4	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[1]	Poor	Fair	Good	Very Good	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	<10

---

[1] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

quite remote from intended markets and development. Assigned ratings are intended only as a preliminary guide and should not be construed as a definitive endorsement or elimination of any proposed site. A summary of development potential for selected decorative rock prospects is presented in Table 3.

Table 3. Development potential ratings of decorative pebbles and cobbles from selected Crown land pits and related excavations in New Brunswick. More detailed analysis of parameter ratings for individual sites appears in Appendix D.

Potential Rating (100%)	Prospective Site # (Rating)
HIGH to MODERATE (76-85%)	039 (82%)
	094 (80%)
	054 (78%)
MODERATE to HIGH (66-75%)	047; 052; 121 (75%)
	058, 060, 117 (73%)
	034A (72%)
	118 (70%)
	038; 079 (68%)
	029; 044; 078; 114 (67%)
	068 (66%)
MODERATE (56-65%)	023; 074; 077; 097, 123 (65%)
	011; 036; 045; 098; 124 (63%)
	030; 076; 100; 133 (62%)
	032; 035; 049 (60%)
	110; 113 (61%)
	037, 109 (58%)
	002 (57%)
	091 (56%)
MODERATE to LOW (50-55%)	006; 046, 048; 093; 116 (55%)
	112 (51%)
LOW to MODERATE (46-50%)	092 (48%)

Summary

New Brunswick's geologic diversity is reflected in many potentially useful earth materials including a wide range of underdeveloped natural stone resources. Included in this resource category are potential opportunities for various gradations of decorative pebbles, cobbles and boulders of appealing color and shape (Figures 6 and 7) suitable for landscaping and host of other applications. A review of granular aggregate deposits on Crown lands suggest that parts of York, Charlotte and Northumberland counties have a reasonable development potential for these types of materials. Access to Crown land resources is offered through a clear and concise regulatory process in association with very reasonable primary resource costs. With a

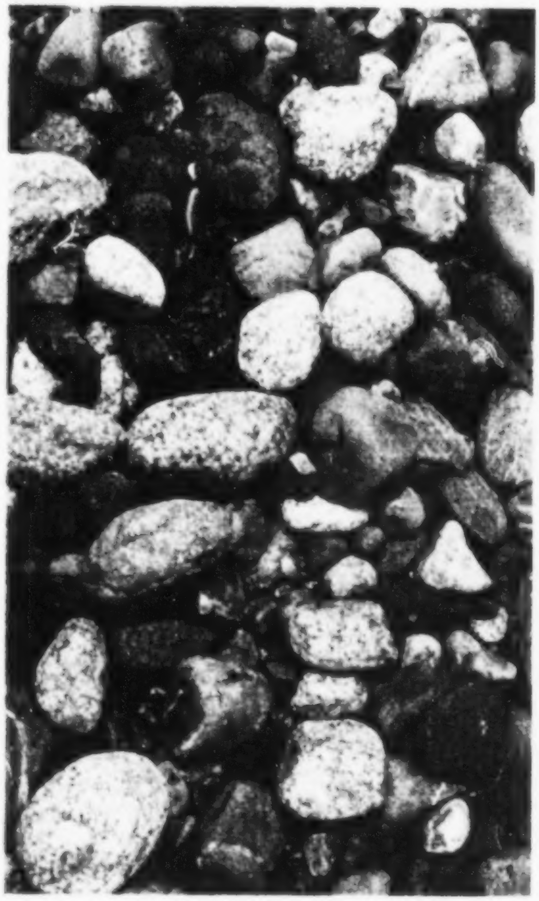

Figure 6. Scree pile of multi-colored, medium to very large pebbles and small cobbles near Magundy, southwestern part of York County, New Brunswick

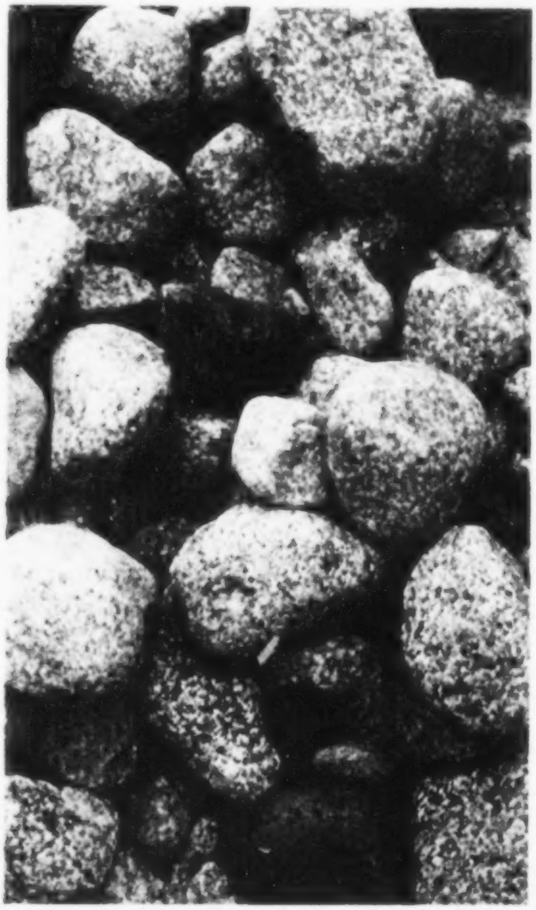

Figure 7. Well-rounded granite pebbles and cobbles near McAdam, south-western part of York County, New Brunswick

qualitatively favourable resource in the midst of an underdeveloped domestic Maritime market strategically situated within one days trucking of a large consumer base in eastern Canada and the northeastern United States, the Province of New Brunswick seems well positioned to take full advantage of what may be a realistic development opportunity for this type of decorative rock material.

Appendix A

Acquisition of pit and quarry rights on Crown lands in New Brunswick

Acquisition of pit and quarry rights on Crown lands in New Brunswick[1]

In New Brunswick the Minister of Natural Resources controls the extraction of all quarriable substances[2] (i.e., granular and bedrock aggregate and peat) on Crown lands and that area of the shoreline that lies within three hundred meters above and three hundred meters below the ordinary high water mark through the Quarriable Substances Act and Regulation 93-92.

There are three regulated procedures by which Crown land aggregate materials may acquire in New Brunswick: A) Written Authorization, B) Quarry Permit and C) Quarry Lease

A) Written Authorization refers to extraction from existing pits or quarries for tonnages less than 1000 tonnes for a period of not exceeding 30 days.

1. Application is made at the District Ranger Office. There is a $10.00 application fee [as per Regulation 93-92 (2003)].
2. If approved, the District Ranger can issue authorization on the same day. The applicant is required to pay a non-refundable royalty payment [calculated at 25 cents/tonne as per regulation 93-92 (2003)] on the total amount of material required (< 1000 tonnes) at the time of issue.
3. The applicant has (30 days) from the date authorization to extract the required material. At the end of that time authorization expires. If the material has not been extracted during this period, the applicant will be required to re-apply (note: royalty payments are not refundable).

B) Quarry Permit addresses extraction from new or existing pits or quarries for a period ending December 31st of the same year issue.

1. Application is made at the local District Ranger Office. There is a $10.00 application fee [as per Regulation 93-92 (2003)].
2. Application is reviewed by the District Ranger, and officials at the Regional Office and the Department's Mines Branch, a process that takes about two weeks.
3. On approved the quarry permit is valid for the time specified but in no case shall it exceed the thirty-first day of December of the year for which it is issued.
4. The permittee is required to submit the following before the 20th day of July and the 20th day of January:

---

[1] This is a brief summary of acquisition procedures for Crown land aggregate resources. For details refer to the Quarriable Substances Act (1991) and Regulation 93-92 (1993).

[2] A quarriable substance is defined as "ordinary stone, building or construction stone, sand, gravel, peat, clay and soil" (Quarriable Substances Act (1991), p. 4)

- a royalty return form stating quantities of quarriable substances removed; and
- a royalty payment [calculated at 25 cents/tonne as per regulation 93-92 (2003)], to be paid to the Financial Services Branch of Department of Natural Resources
-

Depending on circumstances various conditions may be established in the authorization and permit that address general development, operational and reclamation concerns of the subject pit or quarry site.

Development conditions

1. No material is to be removed from within 60 metres of any watercourse.
2. No material is to be removed from below the water table.
3. All merchantable timber must be harvested before any material is removed. Proper permits must be in place before harvesting operations are initiated.
4. Any overburden removed during stripping operations must be stored at a site approved by the District Ranger to be utilized for reclamation initiatives (i.e., re-vegetation) following the completion of the extractive phase of operations (i.e., the permittee is required to redistribute overburden over the excavated area once operations are complete, if the District Ranger deems it necessary).

Operational conditions

1. Should any water be withdrawn from nearby watercourses for the operation of pits or quarries, or should any water be discharged from a pit or quarry operation, appropriate approvals (i.e., Watercourse Alteration Permit) is required from the Department of Environment and Local Government.
2. Any stream crossing or alteration associated with pit and quarry operations will require appropriate approval (i.e., Watercourse Alteration Permit) from the Department of Environment and Local Government.
3. If an operator plans on conducting any kind of processing facility in conjunction with pit and quarry operations (i.e., asphalt, cement, etc), they may require a Certificate of Approval to Operate issued by the Department of Environment and Local Government.
4. Operators should be aware that the Workplace, Health and Safety Compensation Commission have regulations addressing the safe operation of equipment in a pit or quarry.

Reclamation

All permit holders are required to rehabilitate the area they have worked, within a Crown land pit or quarry. In general, the permit holder is required to take appropriate steps to ensure the safety of the public and protection of the environment. This includes but is not limited to sloping or placing safety berms around perimeters of worked faces and the proper contouring pit/quarry floors to limit excessive ponding of water within the excavated area. As well, there may be conditions added to the authorization or permit specifying certain requirements such as re-seeding, reforestation and others for the worked area.

C) A Quarry Lease is a third procedure available to acquire the rights to Crown land quarriable substances. It differs from the authorization and permitting process in that a lease will provide a company exclusive rights to specified resource area and/or sole use of a pit or quarry located on Crown land. The term of the lease can vary up to a maximum term of ten years. To secure a quarry lease the company must be able to demonstrate the need for exclusive use (i.e., to secure their investment in equipment, etc.)

The quarry lease application and approval process generally requires a minimum of 6 months to complete and includes the following steps:

1. Application is made at the local District Ranger Office. There is a $50.00 application fee [as per Regulation 93-92 (2003)].
2. The application is forwarded to the Department's Mines Branch Fredericton headquarters through the Regional Office.
3. As part of a comprehensive review process the applicant is requested to submit additional details pertaining to the development and reclamation of the proposed pit or quarry site. This information generally includes but is not limited to the following[3]:

Location plan with:

a) A map (1:12,500 scale or greater detail) showing:
b)

- topographic features;
- natural watercourses;
- public roads and highways;
- any surrounding or neighbouring land uses, etc., within 1000 meters of the proposed pit or quarry site.

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[3] The Minister of Natural Resources reserves the authority to attach any special conditions to any proposed Crown land pit/quarry authorization, permit or lease.

c) A map showing the proposed lease boundaries, including the size of the lease area (hectares).

d) Site plan showing the following:

- entrances and exits to and from the site;
- location of any fences, gates or barriers;
- location of all facilities associated with further processing, waste water treatment or control of surface water;
- production stockpile location(s), waste piles, settling ponds; and
- location of all permanent or temporary structures on the site.

Development plan with:

- estimated annual production;
- estimated employment potential;
- proposed extraction method (s);
- provisions for safety;
- planned sequence and direction of pit development;
- estimated investment in equipment to be utilized including that associated with drilling, blasting, loading, hauling and sizing; and
- a list of commodities (i.e., products) to be produced.

Operating plan with:

- annual operating schedule, including daily hours of operation;
- haulage routes to be used to transport product to customers;
- a description of the source, quantity and use of water in the extraction or beneficiation process (i.e., wash plant, etc.)

Environmental Protection plan with:

- a description of the method (s) used to collect, store and dispose of lubricants;
- a list of chemicals to be used on site; and
- a description of the quantity, quality and mitigative processes proposed to treat any effluent being discharged into the surrounding environment.

Reclamation plan with:

- a detailed description and schedule of the planned procedures for the protection, reclamation and rehabilitation of the site, including where applicable details pertaining to: backfilling, contouring, benching, sloping, grading, fencing, screening, construction of berms and re-vegetation;

- a plan for ongoing reclamation; and
- an estimated cost of the reclamation program.

4. Information is reviewed by various regulatory agencies. Comments are coordinated and reviewed by the Mines Branch officials when considering the application.
5. On approval, the lease applicant is required to proceed with a legal survey of the proposed site and submit an appropriate survey plan. The applicant is required to pay a first year land rental fee [i.e., calculated at $50.00 per hectare, as per regulation 93-92 (2003)],) and submit a reclamation security [$20.00 per hectare or $5000.00, whichever is greater, as per regulation 93-92 (2003)]. Once all requirements are completed the lease documents are prepared for signature by the lessee and the Minister.
6. Similar too the permitting process the holder of the lease is required to submit before the 20th day of July and the 20th day of January:

   - a royalty return form stating quantities of quarriable substances removed; and a royalty payment [calculated at 25 cents/tonne as per regulation 93-92 (2003)], to be paid to the Financial Services Branch of Department of Natural Resources

Appendix B

New Brunswick Crown land survey for decorative pebble, cobble and boulders: qualitative and related data on selected sample sites (see Plate 2004-1 for location)

Index to potential decorative pebbles, cobbles and boulders from selected Crown lands in New Brunswick

Site # TW-…	Deposit Type **G** = Granular aggregate **B** = Boulder	Deposit Name	County	NTS 21	Rating (10)	Page #
002-01	G	Alma	Albert	H/10	5.7	29
006-01	G	Crawford Lake	Kings	H/11	5.5	36
011-01	G	St. Martins	Saint John	H/05	6.3	43
020-01	B	Shogomoc Stream (east A)	York	G/14	Not Qualified	50
021-01	B	Shogomoc Stream (east B)	York	G/14	Not Qualified	52
023-01	G	Shogomoc	York	G/14	6.5	53
028-01	G	Black Brook (Magundy)	York	G/14	6.8	60
029-01	G	Mud Lake	York	G/14	6.7	67
030-01	G	Slugundy Ponds	York	G/14	6.2	74
031-01	G	Little Pokiok Stream	York	G/14	Not Rated	80
032-01	G	Lake Road	York	G/14	6.0	81
033-01	B	First Lake	York	G/11	Not Qualified	87
034A-01	G	White Beaver Brook (north)-McAdam	York	G/14	7.2	89
035-01	G	White Beaver Brook (south)-McAdam	York	G/14	6.0	96
036-01	G	Thomaston-Brockway (north)	York	G/14	6.3	103
037-01	G	Thomaston-Brockway (central)	York	G/14	5.8	110
038-01	G	Thomaston-Brockway (south)	York	G/14	6.8	111
039-01	G	Basswood Ridge	York	G/06	8.2	117
043-01	B	McQuirks Mtn.	Charlotte	G/02	Not Qualified	125
044-01	G	Hanwell	York	G/15	6.7	127

Site # TW-…	Deposit Type **G** = Granular aggregate **B** = Boulder	Deposit Name	County	NTS 21	Rating (10)	Page #
045-01	G	Lyons Stream (north)	York	G/10	6.3	134
046-01	G	Lyons Stream (south)	York	G/10	5.5	141
047-01	G	Lee Hill	York	G/10	7.5	148
048-01	G	Otter Brook (south)	Sunbury	G/10	5.5	155
049-01	G	Otter Brook (north)	Sunbury	G/07	6.0	162
052-01	G	McDougall Lake	Charlotte	G/07	7.5	169
053-01	G	McDougall Lake-Watty Brook	Charlotte	G/07	Not Qualified	176
054-01	G	Lee Settlement - Pipeline (south)	Charlotte	G/07	7.8	177
055-01	B	Lee Settlement - Pipeline (south)	Charlotte	G/07	Not Qualified	183
056-01	B	Lee Settlement - Pipeline (north)	Charlotte	G/07	Not Qualified	185
057-01	B	Lee Settlement – McDougall Lake (west)	Charlotte	G/07	Not Qualified	186
058-01	G	Seely Lake	Charlotte	G/07	7.3	187
060-01	G	Anthony Lake	Charlotte	G/07	7.3	194
063-01	B	Cranberry	Charlotte	G/07		202
068-01	G	Victoria Lake	Charlotte	G/07	6.6	203
074-01	G	North Branch Lepreau River	Charlotte	G/07	6.5	210
076-01	G	Pomeroy (north)	Charlotte	G/07	6.2	217
077-01	G	Trout Lake	Charlotte	G/07	6.5	224
078-01	G	Jerry Pond	Charlotte	G/02	6.7	231
079-01	G	Little Pocologan River	Charlotte	G/02	6.8	237
083-01	G	Seven Mile Lake Road (Harwood Hill)	Charlotte	G/01	Not Qualified	244
091-01	G	West Branch Napadogan River	York	J/06	5.6	246

Site # TW-…	Deposit Type **G** = Granular aggregate **B** = Boulder	Deposit Name	County	NTS 21	Rating (10)	Page #
092-01	G	Narrows Mountain-Nashwaak River	York	J/06	4.8	253
093-01	G	Rocky Brook Lake	York	J/07	5.5	259
094-01	G	Miramichi Lake	York	J/07	8.0	266
097-01	G	Devils Back Brook	Northumberland	J/16	6.5	273
098-01	G	Renous Forks	Northumberland	J/16	6.3	280
099-01	G	North Branch Renous River	Northumberland	J/15	Not Qualified	287
100-01	G	South Branch Dungarvon River	Northumberland	J/15	6.2	289
108-01	G	Loggie Lodge	Northumberland	J/15	Not Qualified	295
109-01	G	Tuadook-Little Southwest Miramichi River	Northumberland	J/15	5.8	296
110-01	G	Big Hole Lake(north)	Northumberland	J/09	6.1	303
111-01	G	Mullins Stream Road	Northumberland	J/16	Not Qualified	310
112-01	G	North Branch Big Sevogle River (south)	Northumberland	J/09	5.1	311
113-01	G	Sevogle	Northumberland	O/01	6.1	318
114-01	G	Big Sevogle River (north)	Northumberland	O/01	6.7	324
116-01	G	Bois Gagnon	Gloucester	P/06	5.5	331
117-01	G	Middle Landing	Gloucester	P/05	7.3	338
118-01	G	Blue Mountain	Gloucester	P/12	7.0	345
121-01	G	Trout Lake Brook	Kent	I/05	7.5	352
122-01	G	South Lake	Northumberland	I/12	Not Qualified	359
123-01	G	Dupres Lake	Northumberland	I/12	6.5	361

Site # TW-…	Deposit Type **G** = Granular aggregate **B** = Boulder	Deposit Name	County	NTS 21	Rating (10)	Page #
124-01	G	Valley Forest Road	York	J/03	6.3	367
133-01	G	South Branch Cranberry Brook	York	G/11	6.2	374
139-01	G	Moccasin Lake-West Branch Little Southwest Miramichi River	Northumberland	O/02	Not Qualified	381

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Alma

Sample #: TW-002-01 **Year:** 2001

Location: NTS: 21 H/10 County: Albert

Latitude: 45° 39.302" Longitude: 64° 52.781"

Zone: 19 UTM Northing: 5057350 UTM Easting: 353600

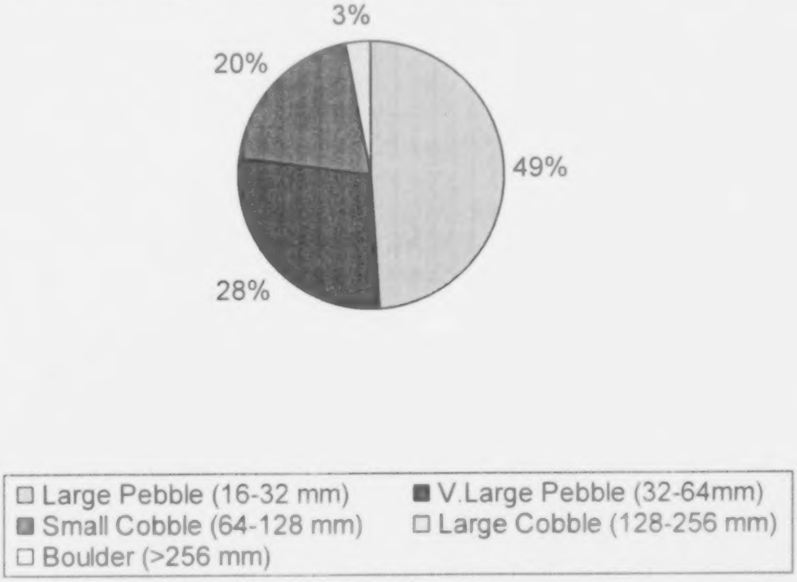
Description: A large (> 4 ha) inactive pit, 7.4 km northeast of the Village of Alma, adjacent and south of Hwy # 114, near Little Stream.

Particle Size Classification:

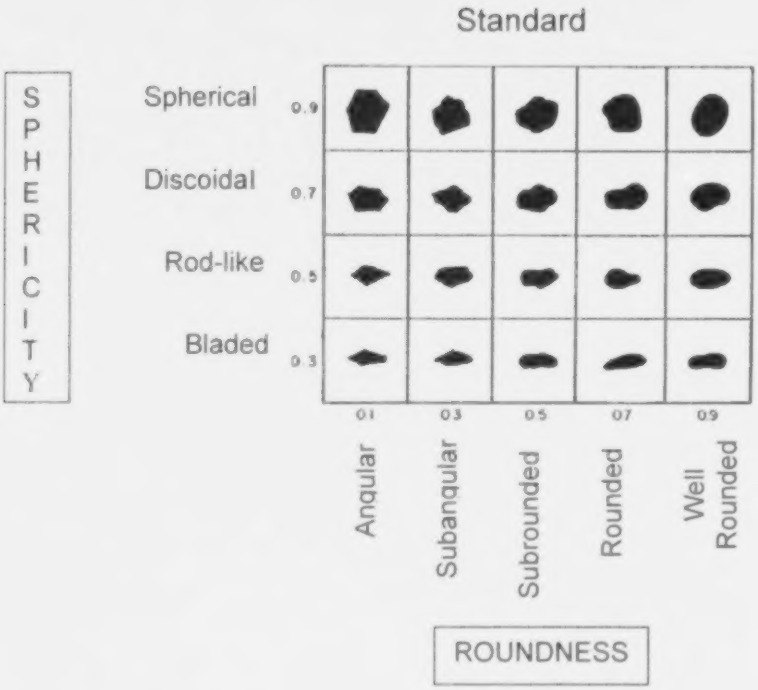
Pit–run Material

60 % clay, sand and small pebbles (all material <25.4 mm or <1")	**40 %** medium to very large pebble and cobble (all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

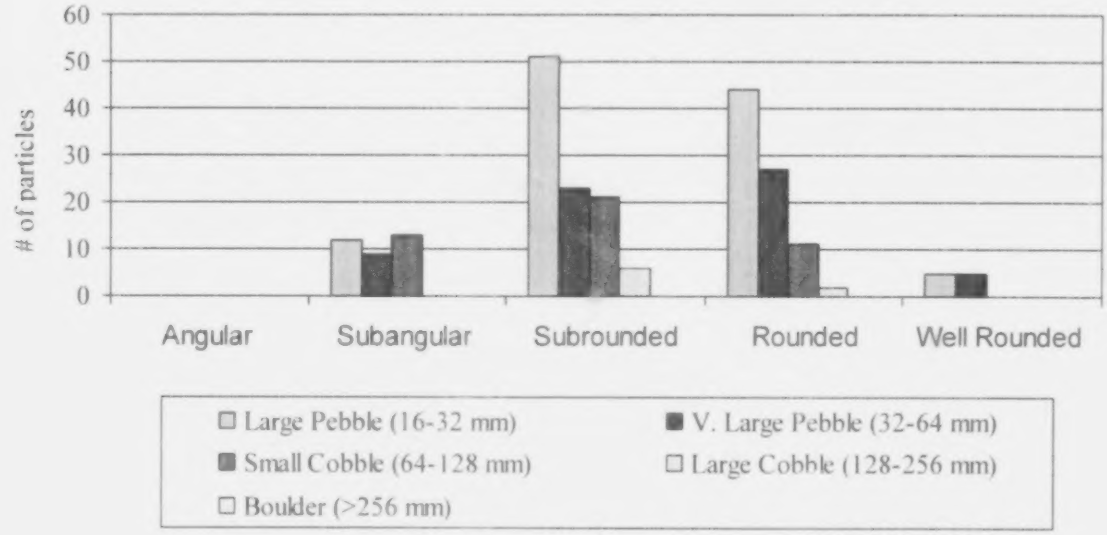


Roundness and Sphericity:



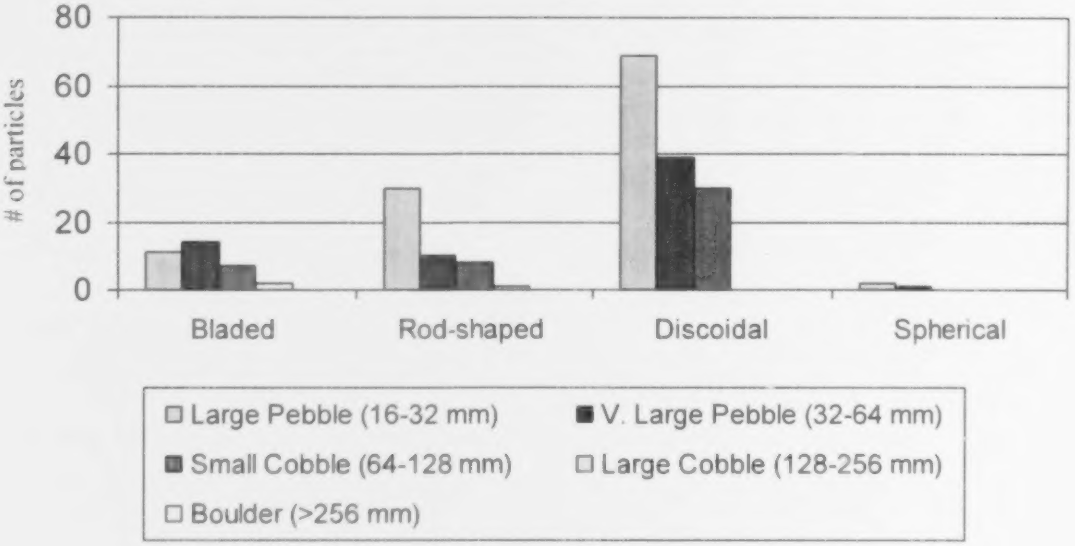
Roundness vs Particle Class Size

Sample #: TW-002-01

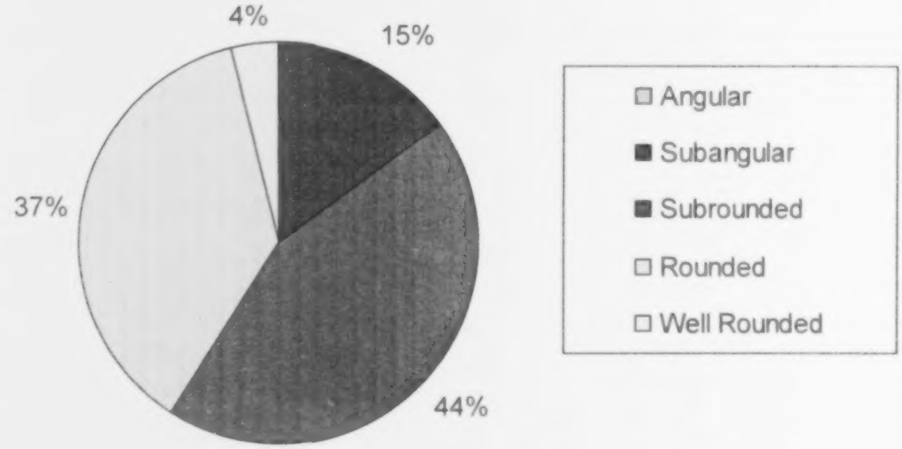


Sample # TW-002-01

Sphericity vs Particle Class Size

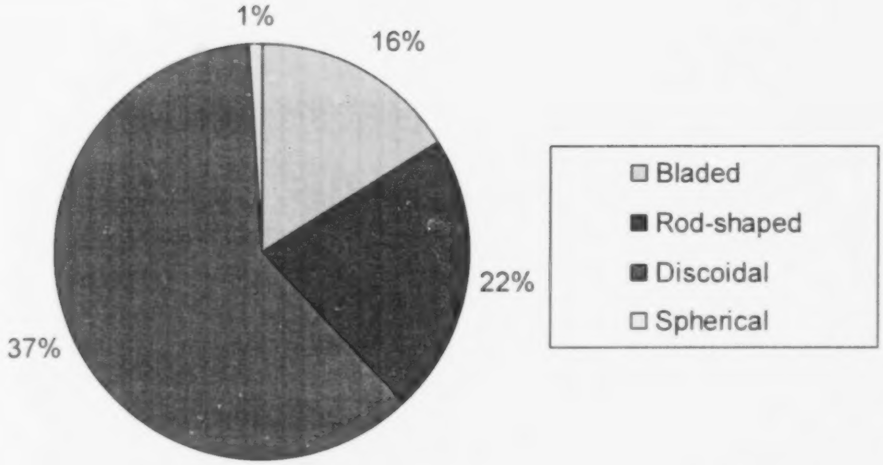


Average Roundness



Average = 0.56 (Subrounded)
Standard deviation = 0.155

Average Sphericity



Average = 0.59 (Rod-shaped)
Standard deviation = 0.156

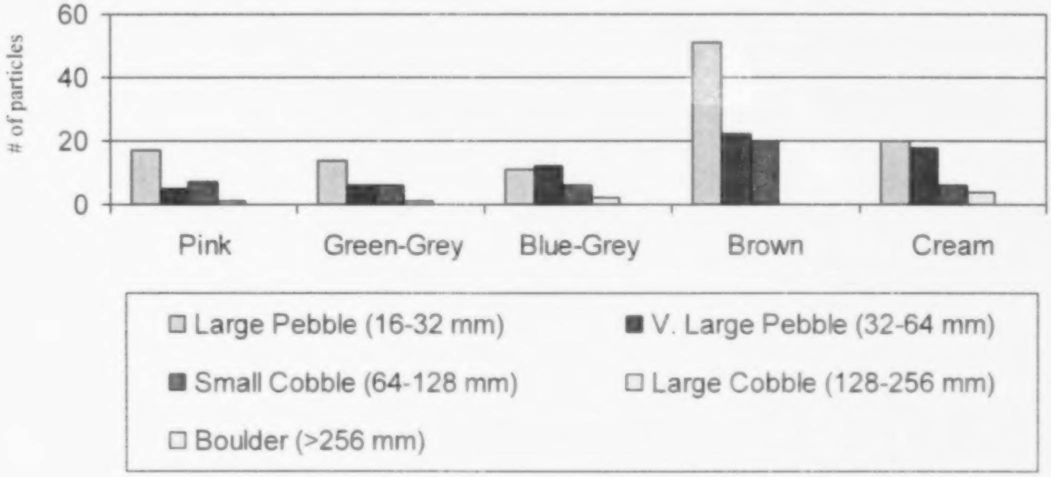
Color:

Sample # TW-002-01

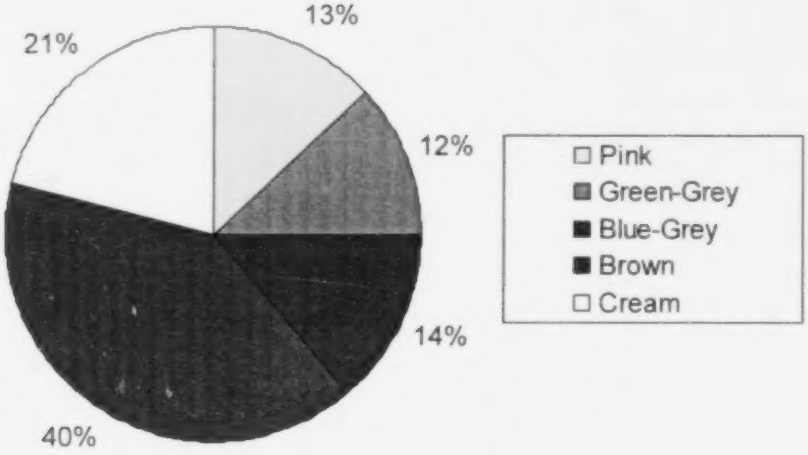
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



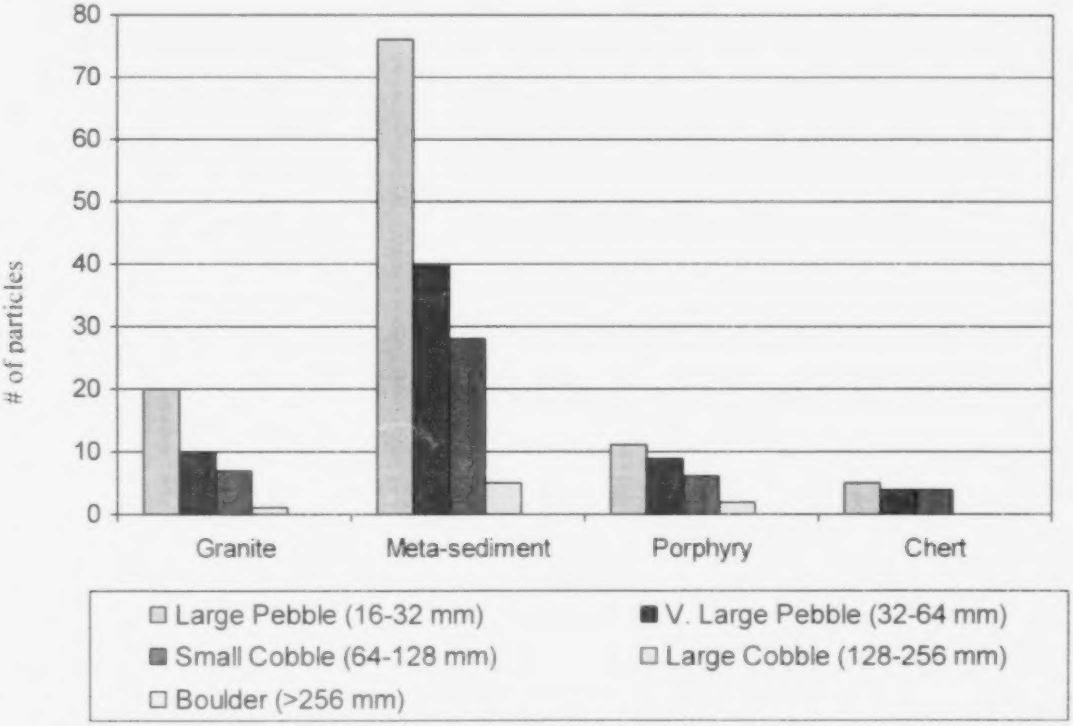
Rock Type:

Number of Different Textural Types

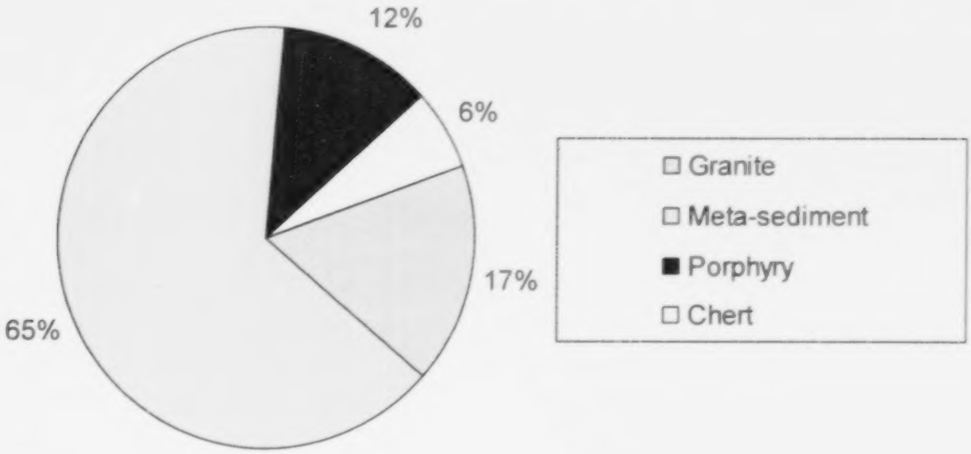
Sample # TW-002-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-002-01

Insitu pebble, cobble and small boulder-sized material near Alma, Albert Co., southeastern New Brunswick.

Comments: This pit near Alma has an abundance of pebbles and cobbles. Boulders up to 1 meter across occur locally but do not account for a significant part of the resource. Finer materials are generally coarse sand and gravel with minor lenses of fine sand and silt. Sample of pit run material yielded 40% medium to very large pebbles and cobbles with large and very large pebble (77%) dominating. On average, pebbles and cobbles are subrounded to rounded and discoidal-shaped. Many different colors are represented by the material here with brown being the most abundant. Meta-sedimentary rocks comprise almost 2/3 of the sampled material.

The resource appears quite extensive, particularly on the north side of Highway #114. Access to site involving crossing the Little Stream adjacent the existing excavated area may present itself as a potential development concern. At present the resource is rated at a moderate potential (60%) for decorative aggregate material (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Crawford Lake (north)

Sample #: TW-006-01 **Year:** 2001

Location: NTS: 21 G/14 County: Kings

Latitude: 45° 57.195" Longitude: 67° 19.710"

Zone: 19 UTM Northing: 5090000 UTM Easting: 629500

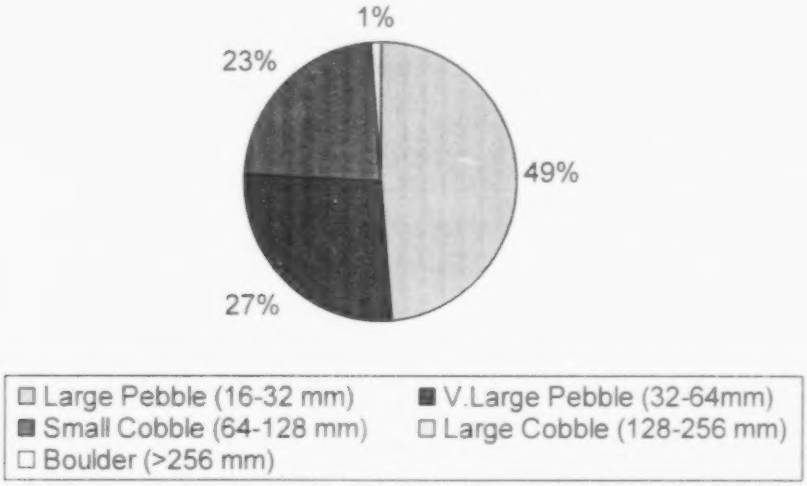
Description: A small (<1 ha) inactive partially overgrown pit, 1 km north of Crawford Lake adjacent to and east of the Walton Lake Road.

Particle Size Classification:

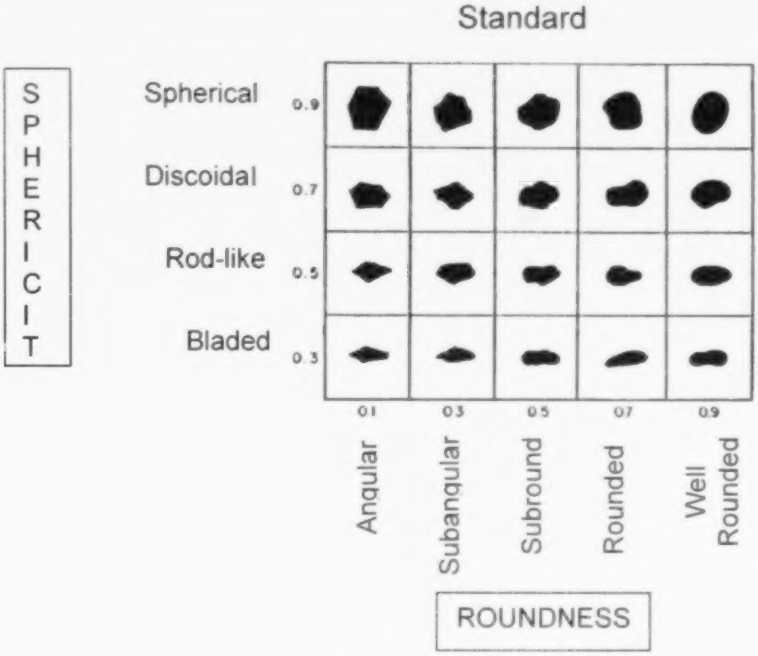
Pit–run Material

40 % clay to sand to small pebble (i.e. all material <25.4 mm or <1")	**60 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

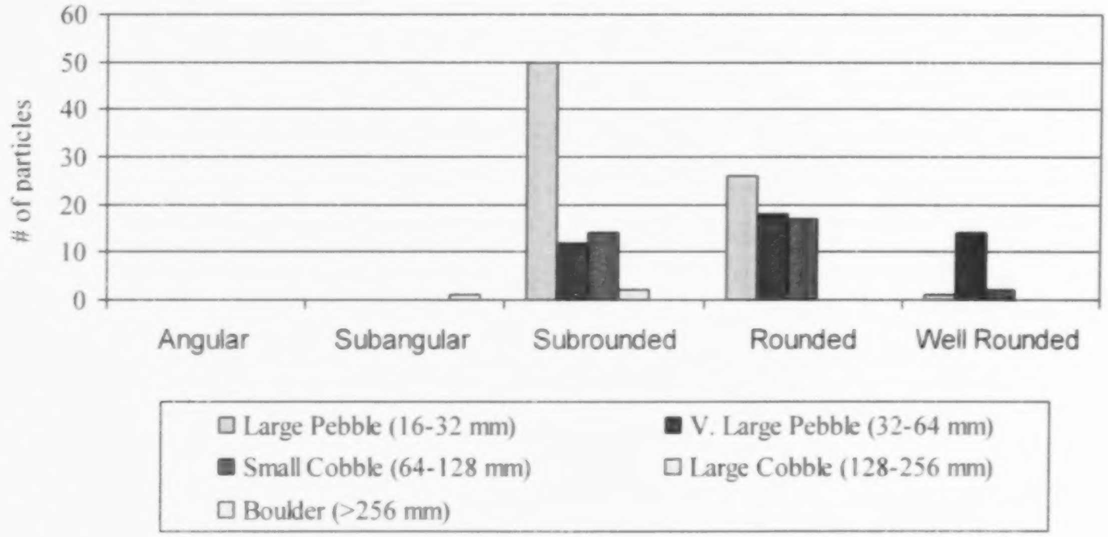


Roundness and Sphericity:



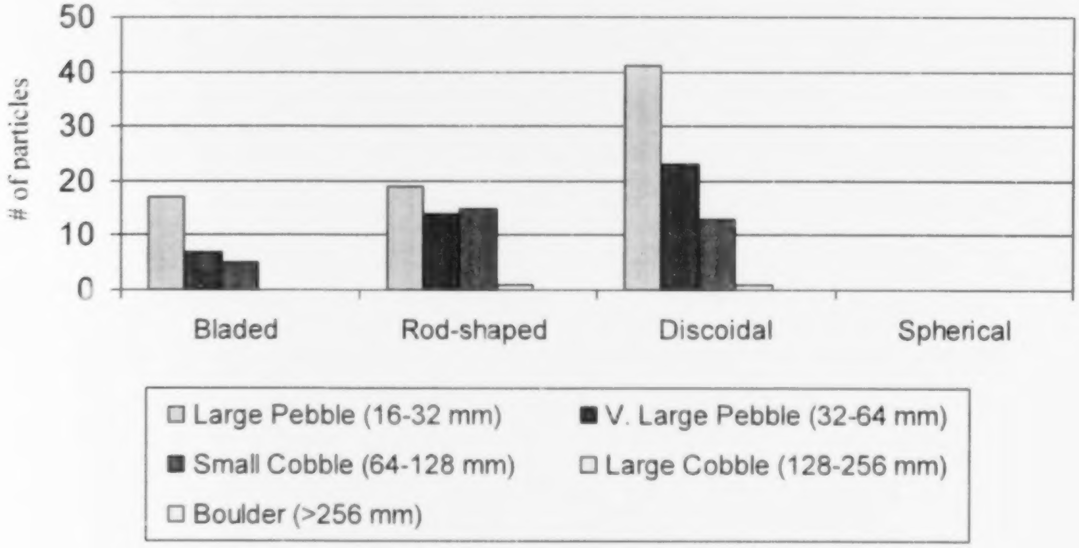
Roundness vs Particle Class Size

Sample # TW-006-01

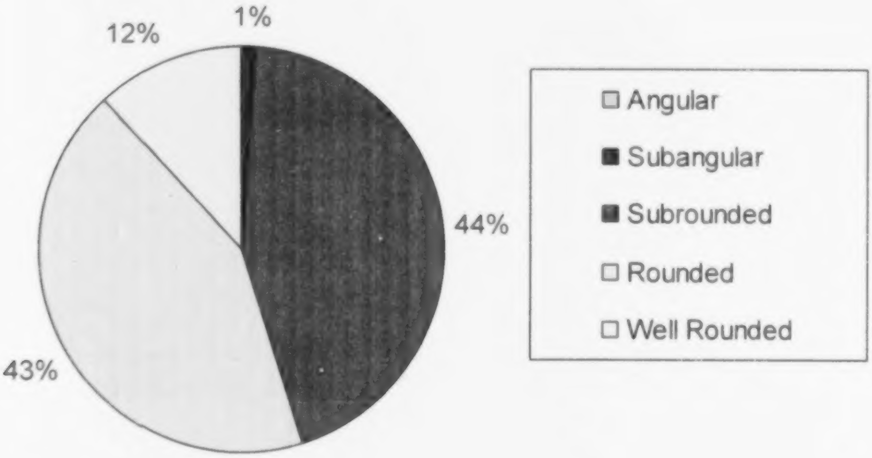


Sample # TW-006-01

Sphericity vs Particle Class Size

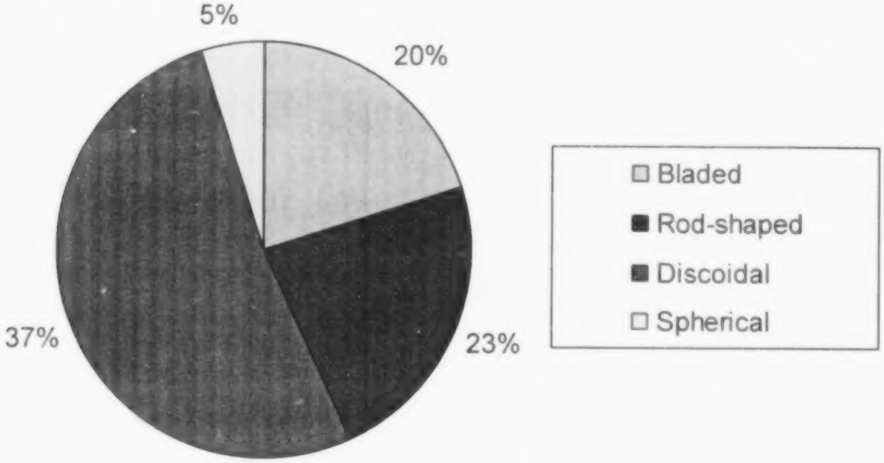


Average Roundness



Average = 0.620 (Rounded to Subrounded)
Standard deviation = 0.137

Average Sphericity



Average = 0.56 (Discoidal to Rod-shaped)
Standard deviation = 0.155

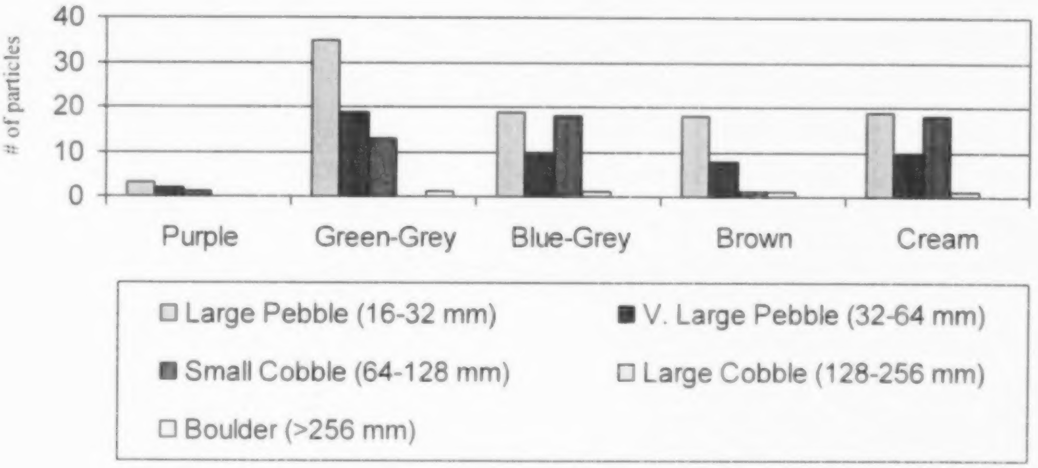
Color:

Sample # TW-006-01

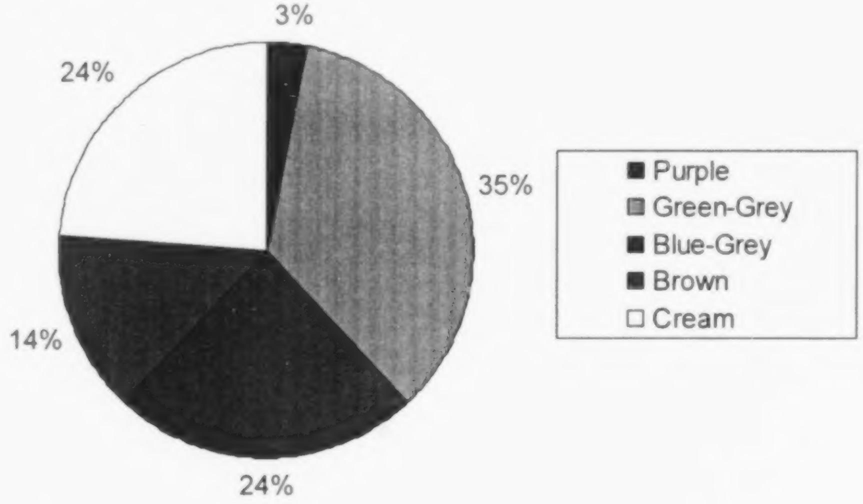
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



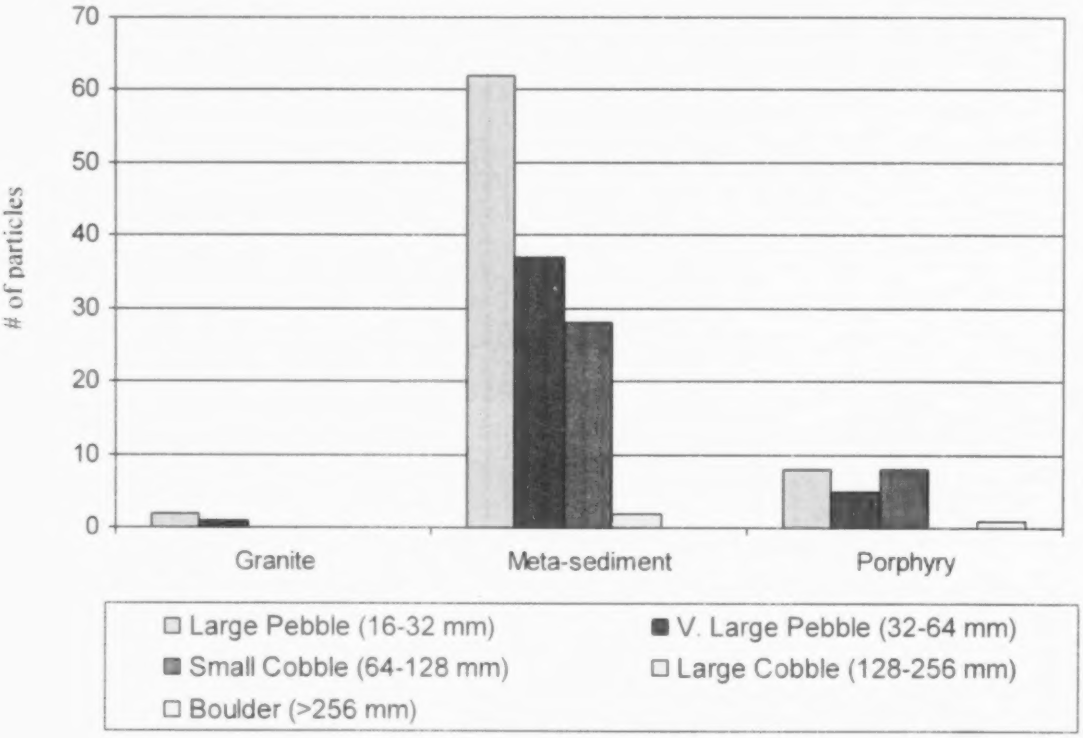
Rock Type:

Number of Different Textural Types

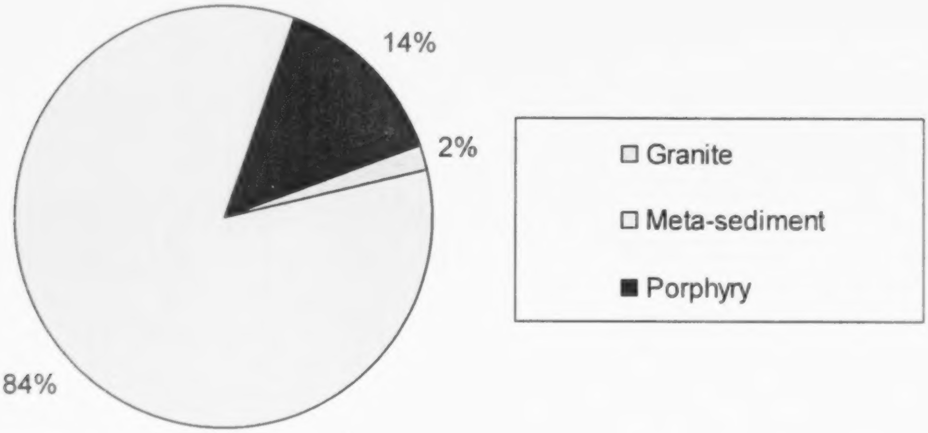
Sample # TW-006-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

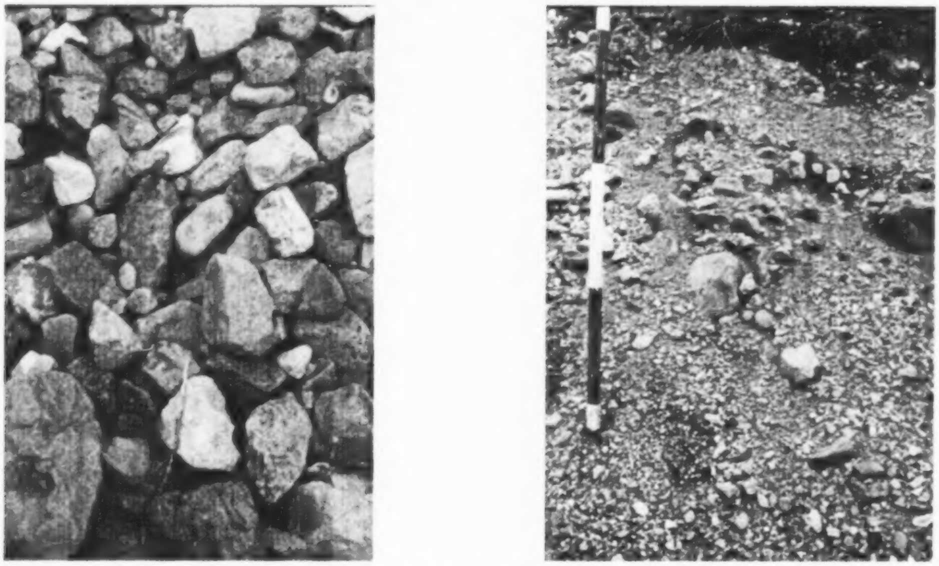
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-006-01



Typical insitu and scree pile of medium to very large pebble from an abandoned pit near Crawford Lake, Kings County, southern New Brunswick.

Comments: This pit near Crawford Lake is virtually abandoned and not reclaimed like other former pits in the area. Over 2/3 of the sized pit-run sample falls into the medium to very large pebble category with small cobble and minor boulders making up the balance. Most of the material is rounded to subrounded and discoidal to rod-shaped. Many different colors are represented with green- and blue-grey the most common. Meta-sedimentary rocks are among the most abundant lithotypes. The resource may offer a moderate (63%) potential for decorative aggregate (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: St. Martins

Sample #: TW-011-01 **Year:** 2001

Location: NTS: 21 H/05 County: Saint John

Latitude: 45° 22.734" Longitude: 65° 32.387"

Zone: 19 UTM Northing: 5028000 UTM Easting: 301050

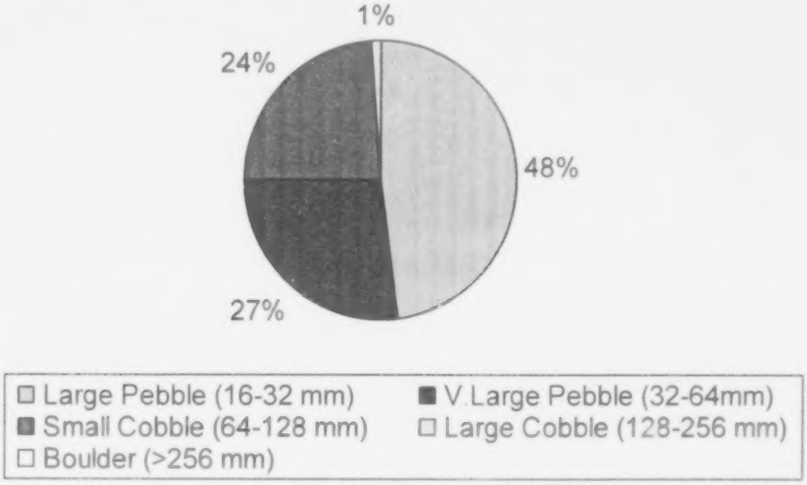
Description: A large (> 4 ha) active pit, west and adjacent the Orange Hill Road, 2.4 km north of its intersection with the main road to Fundy Trail.

Particle Size Classification:

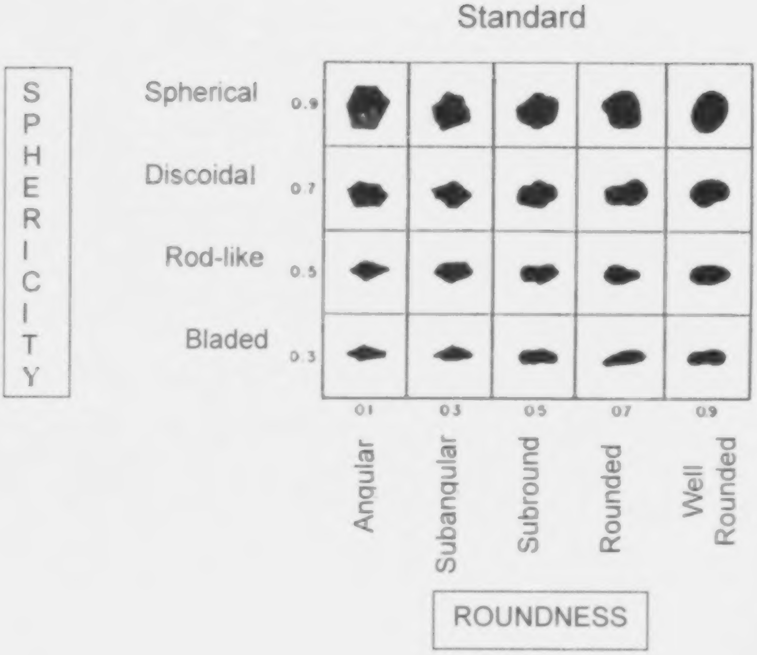
Pit–run Material

42 % clay to sand to small pebble (i.e. all material <25.4 mm or <1")	**58 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

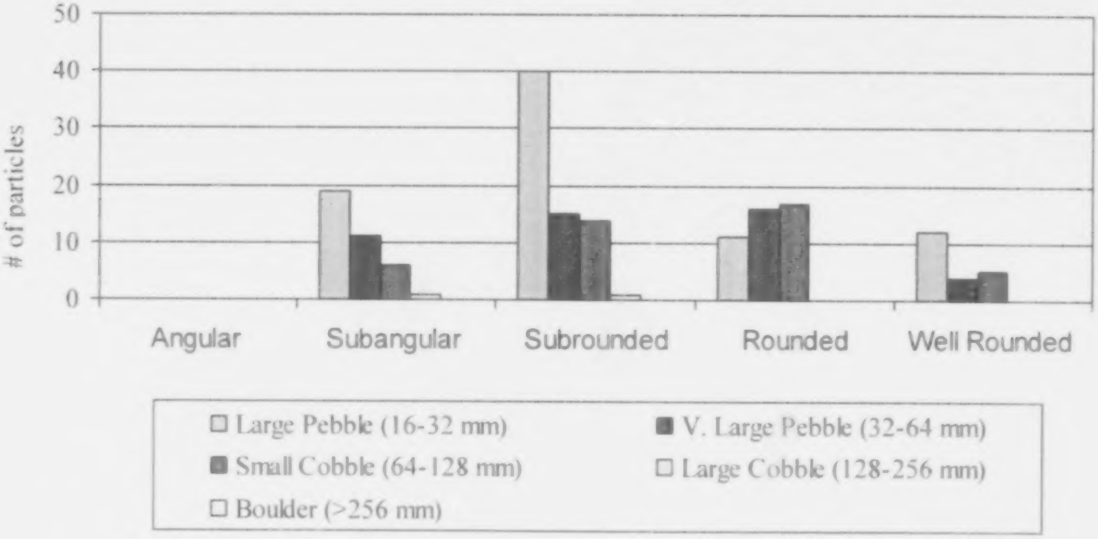


Roundness and Sphericity:



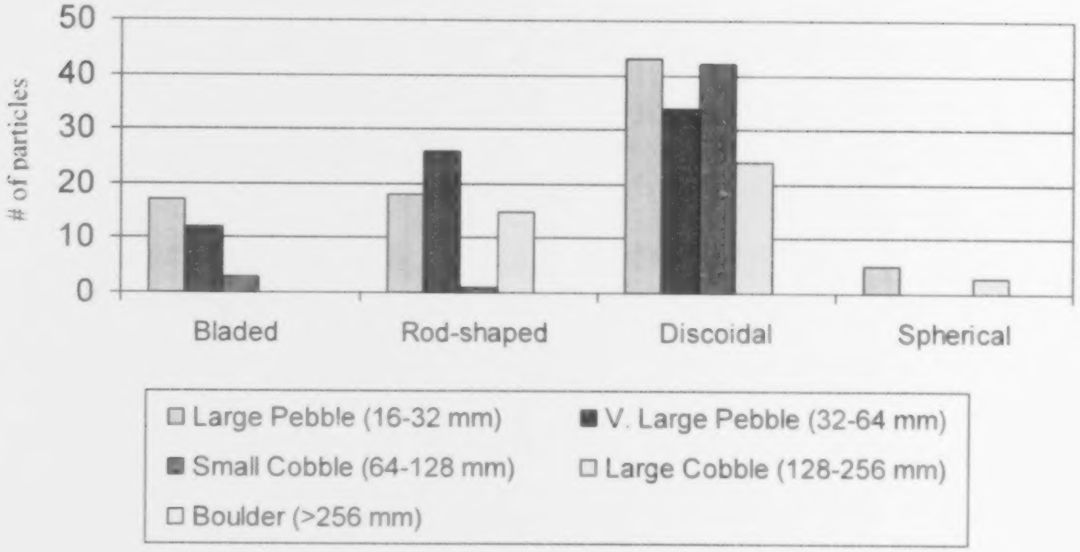
Roundness vs Particle Class Size

Sample # TW-011-01

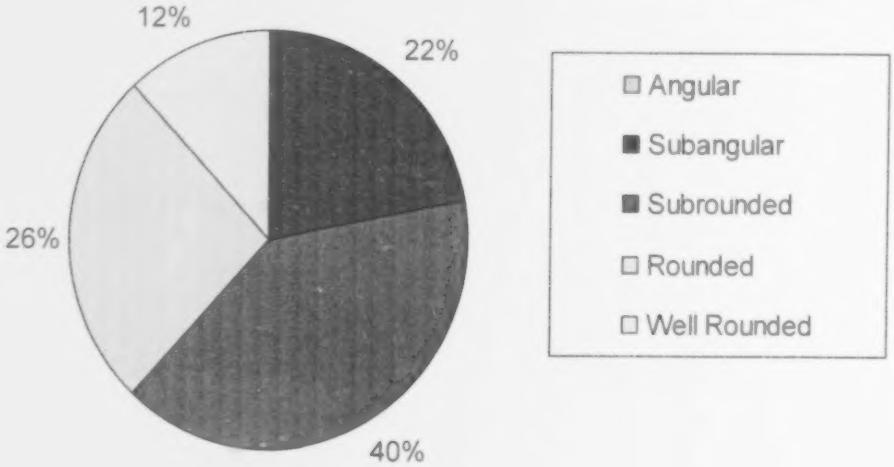


Sample # TW-011-01

Sphericity vs Particle Class Size

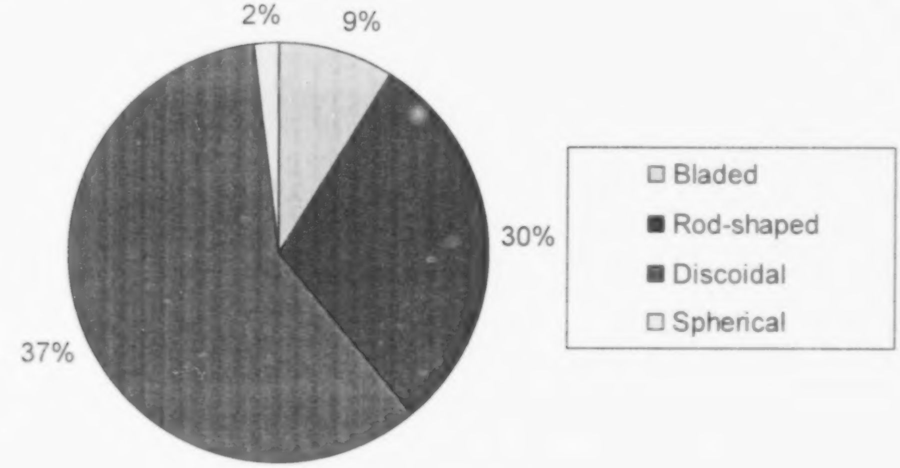


Average Roundness



Average = 0.57 (Subrounded to Rounded)
Standard deviation = 0.188

Average Sphericity



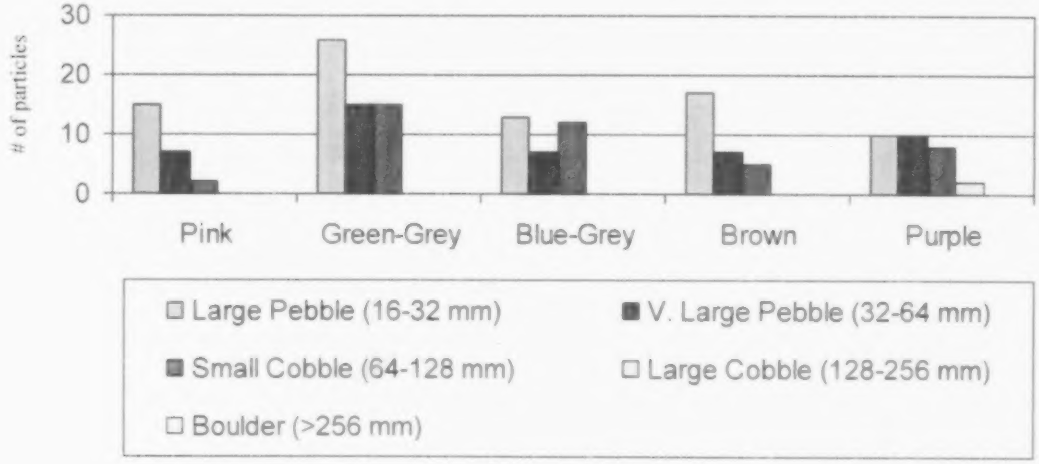
Average = 0.61 (Discoidal to Rod-shaped)
Standard deviation = 0.136

Color:

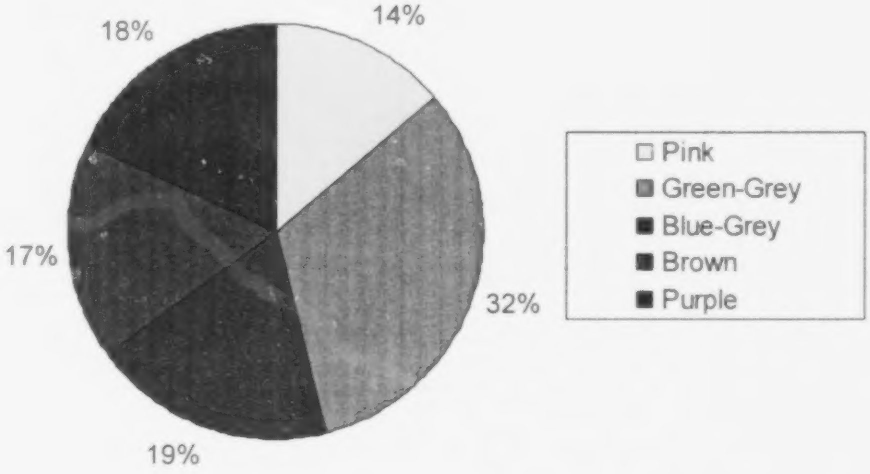
Sample # TW-011-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



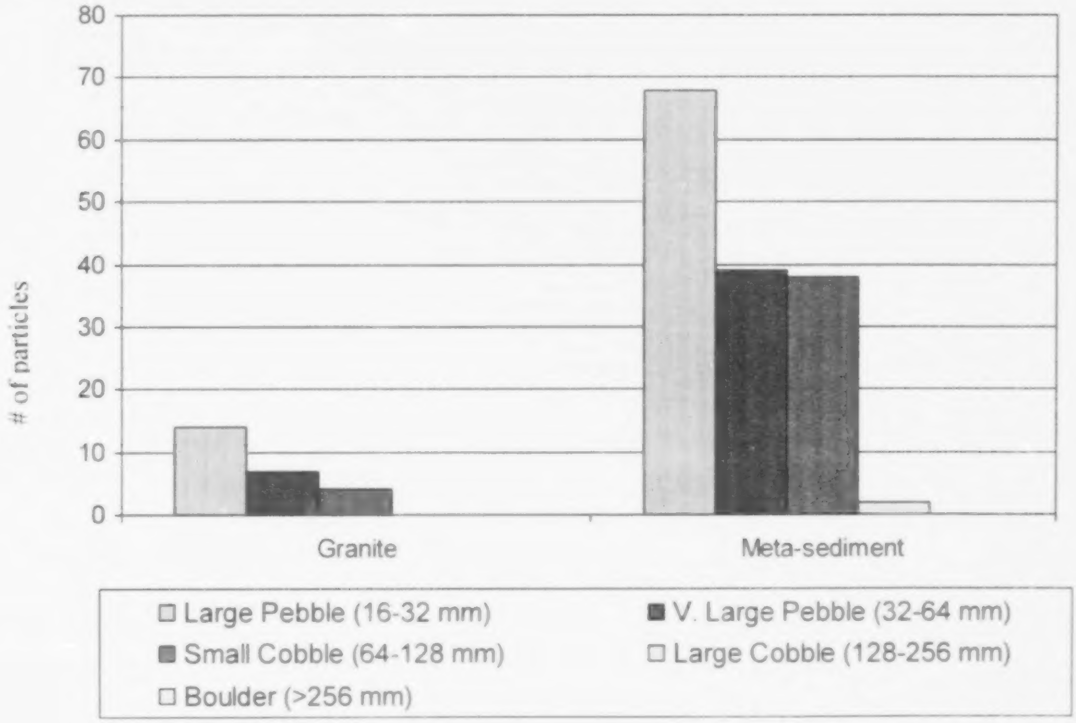
Rock Type:

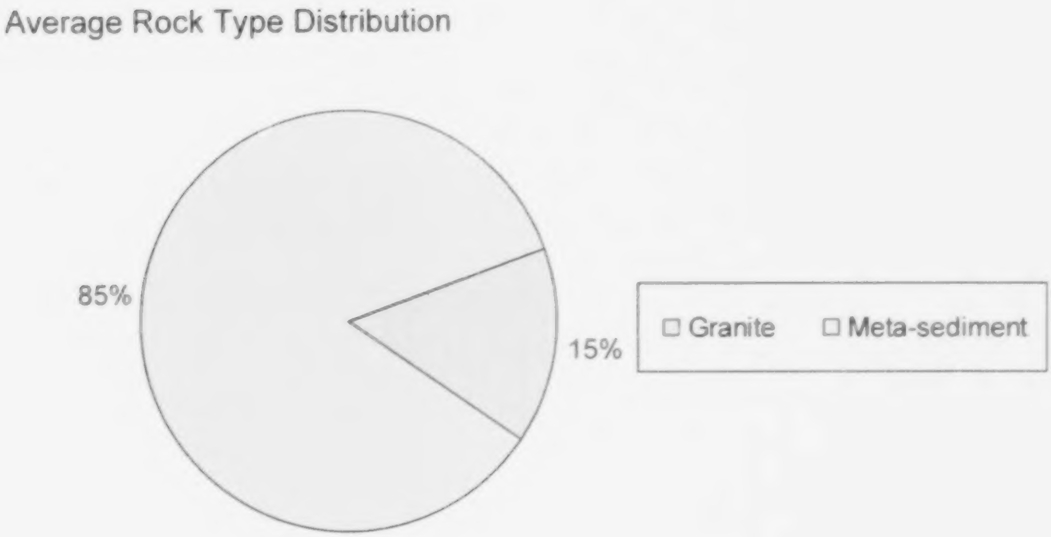
Number of Different Textural Types:

Sample # TW-011-01

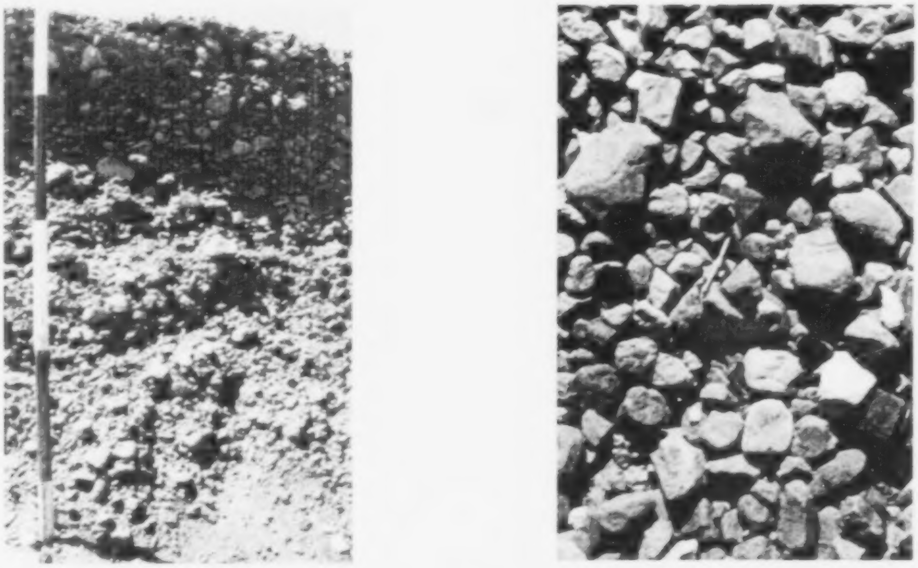
Limited (<2)	Several (2-4)	Many (>4)
X		

Rock Type vs Particle Class Size





Sample # TW-011-01



Typical insitu material and scree pile of large to very large pebble from an active pit north of St. Martins, Saint John County, southern New Brunswick.

Comments: This location is primarily gravel with sampled pit run material yielding slightly less than 60% large pebble to cobble sizes with no significant boulders present. Particle sizes of sample are mostly large to very large pebble (75%) with a balance small cobble (24%). A mixed population of subangular (22%), subrounded (40%) and rounded (26%) discoidal shaped particles is typical. Several colors represented with green-grey the most abundant followed by almost equal distributions of pink, brown, purple and blue-grey. Meta-sedimentary rocks are among the most notable lithotypes. Resource is rated with a moderate potential (63%) for decorative material (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Shogomoc Stream (east A)

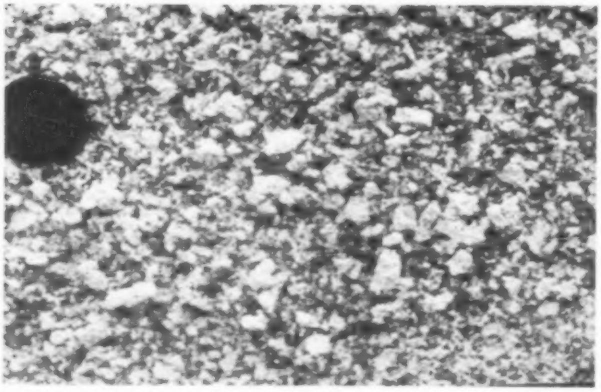
Sample #: TW-020-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

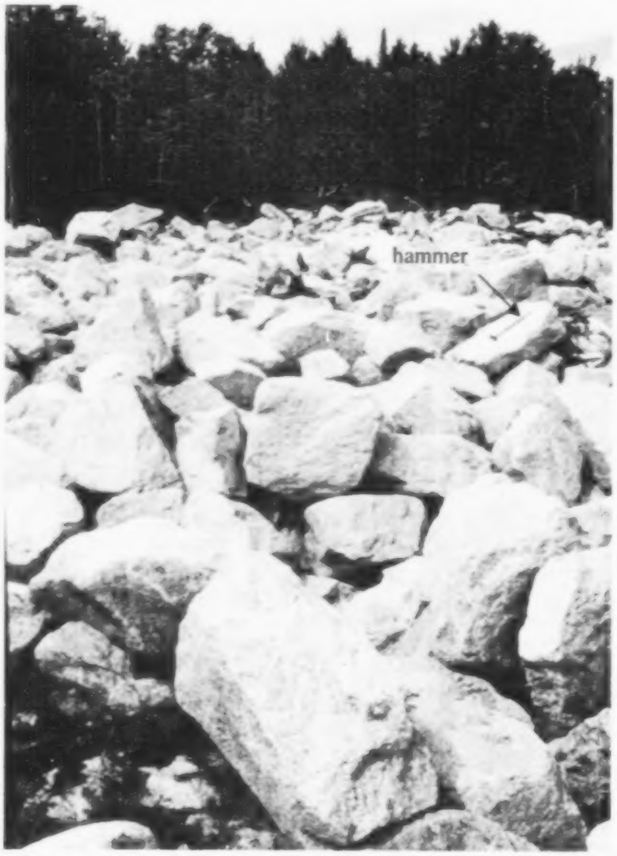
Latitude: 45° 56.921" Longitude: 65° 18.789"

Zone: 19 UTM Northing: 5089500 UTM Easting: 630200

Description: A large area (several hectares) of stock-piled boulders adjacent and 200-300 m south of newly constructed highway, 1 km east of the Shogomoc Stream.



A few hectares of fractured, coarse-grained, phaneritic granite boulders, northwest of Nackawic, York County, western New Brunswick



Comments: Hundreds of variously sized boulders of grey to pink, megacrystic granite (Allandale Granite), with very large pinkish feldspar crystals have been blasted, excavated and stockpiled adjacent a new highway construction project. Thousands of tonnes of material are collected in a "boulder-field" area covering a few hectares on Crown Land. Boulders display fresh straight-sided fractured surfaces and approach several meters across. Access to the area is limited and would probably require new road construction from the Allandale Road, 1.7 km to the east.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Shogomoc Stream (east B)

Sample #: TW-021-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude:45° 56.953" Longitude: 65° 18.334"

Zone: 19 UTM Northing: 5089450 UTM Easting: 630300

Description: A large area (several hectares) of stock-piled boulders adjacent and within 500 to1000 m south of a newly constructed highway, 1.2 km east of the Shogomoc Stream.

Comment: Similar to site TW-020-01. Hundreds of variously sized boulders of grey to pink, megacrystic granite (Allandale Granite) with very large pinkish feldspar crystals excavated and stock piled during construction of adjacent highway. Thousands of tonnes of material are piled in an extensive "boulder-field" area covering a few hectares of Crown Land. Boulders display fresh straight-sided fractured surfaces and approach several meters across. Access to the area is limited and would require road construction to the Allandale Road, 1.7 to 2 km to the east.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Shogomoc Stream

Sample #: TW-023-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude: 45° 57.195” Longitude: 67° 19.710”

Zone: 19 UTM Northing: 5090000 UTM Easting: 629500

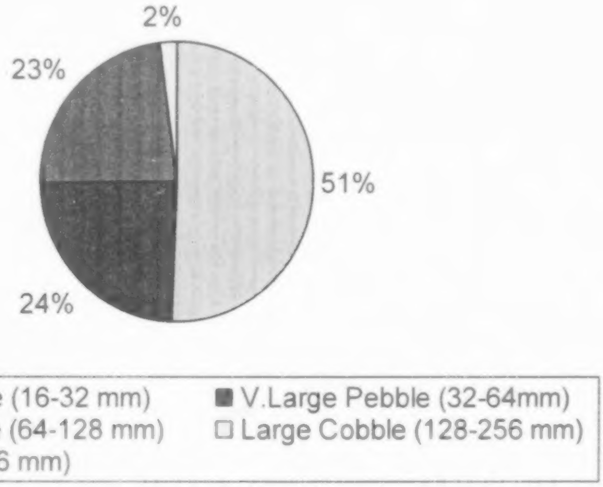
Description: A large (> 4 ha) active pit, 200 m north of Hwy # 2 and 300 west of bridge crossing the Shogomoc Stream.

Particle Size Classification

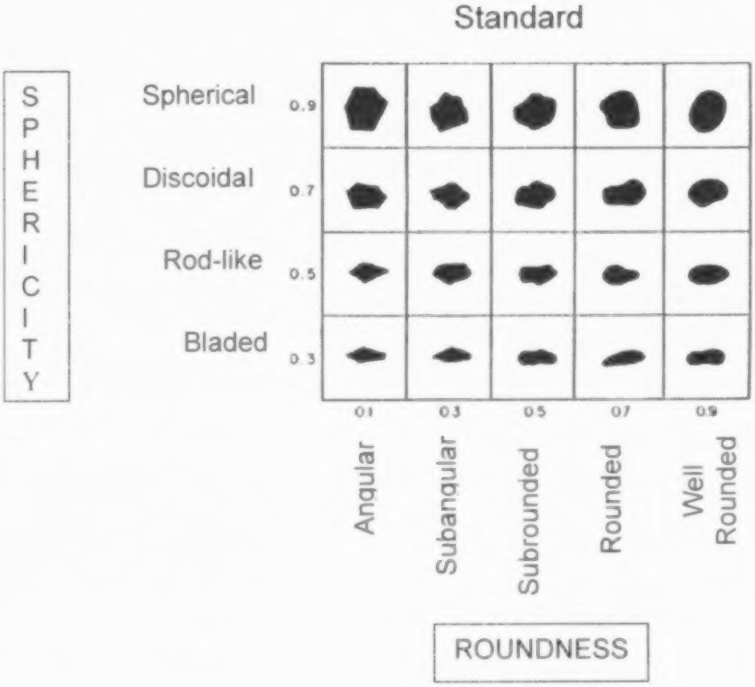
Pit–run Material:

53 % clay to sand to small pebble (i.e. all material <25.4 mm or <1”)	**47 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1”)

Particle Size Classification for > 25.4mm material:

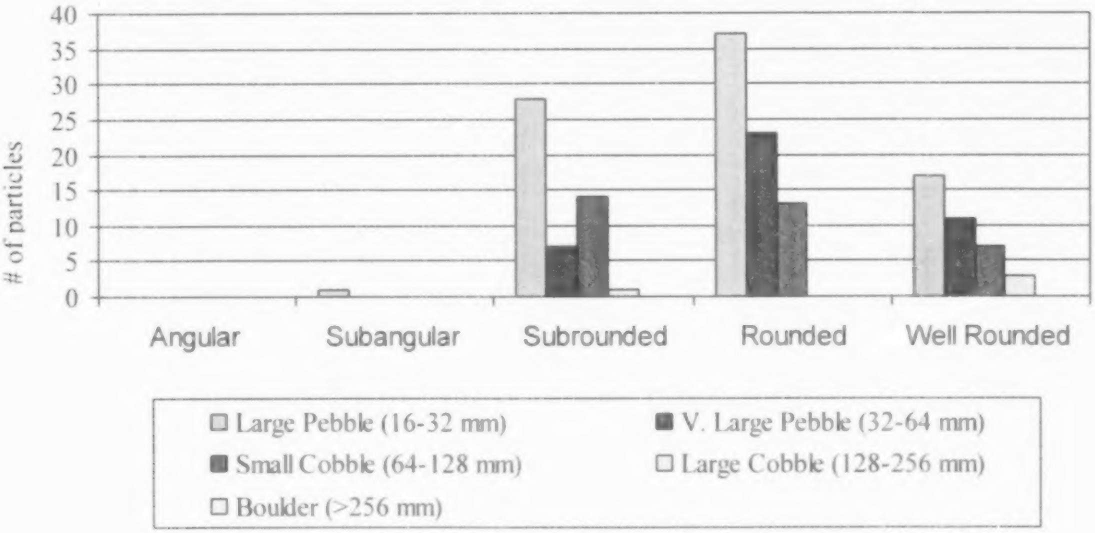


Roundness and Sphericity



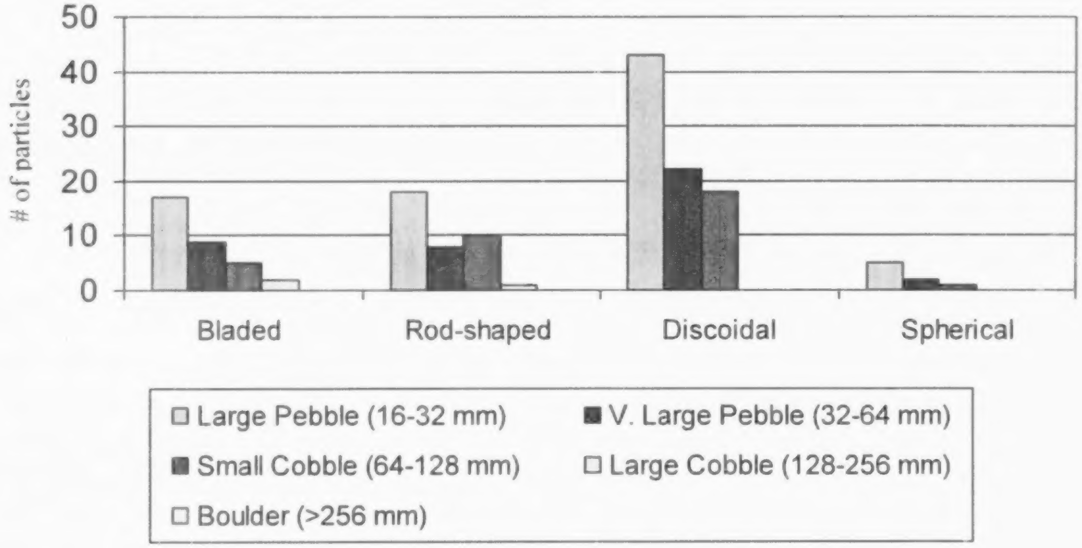
Roundness vs Particle Class Size:

Sample #: TW-023-01

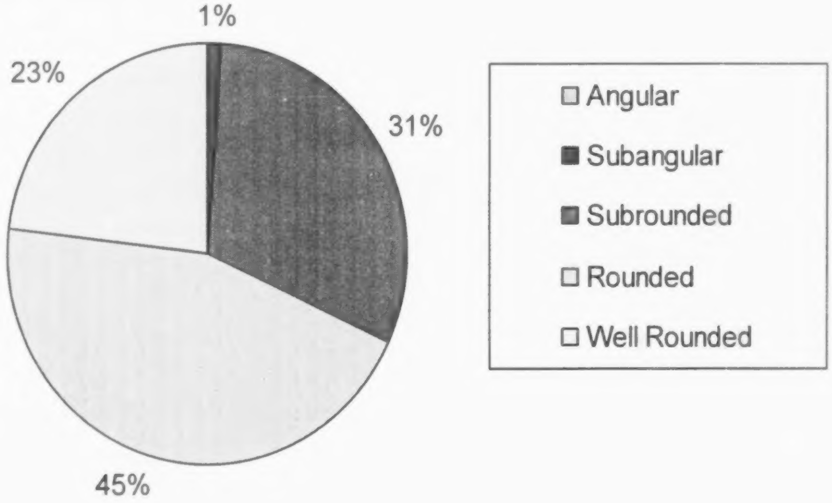


Sample # TW-023-01

Sphericity vs Particle Class Size:

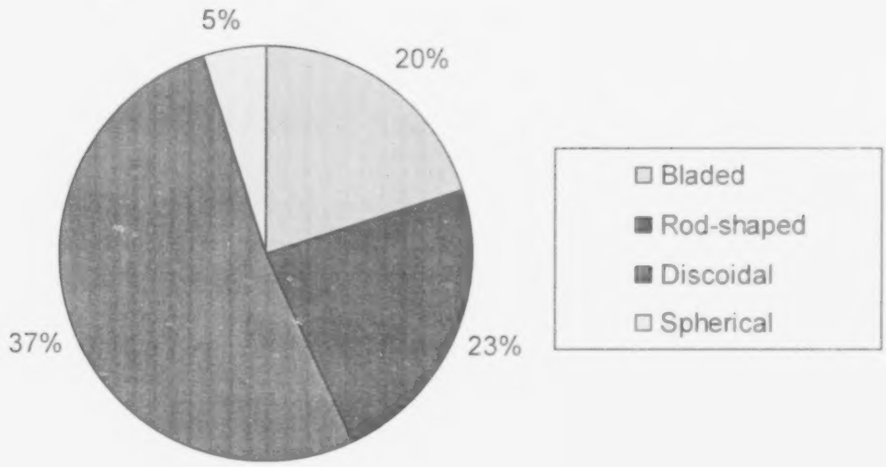


Average Roundness



Average = 0.68 (Rounded to Well Rounded)
Standard deviation = 0.150

Average Sphericity



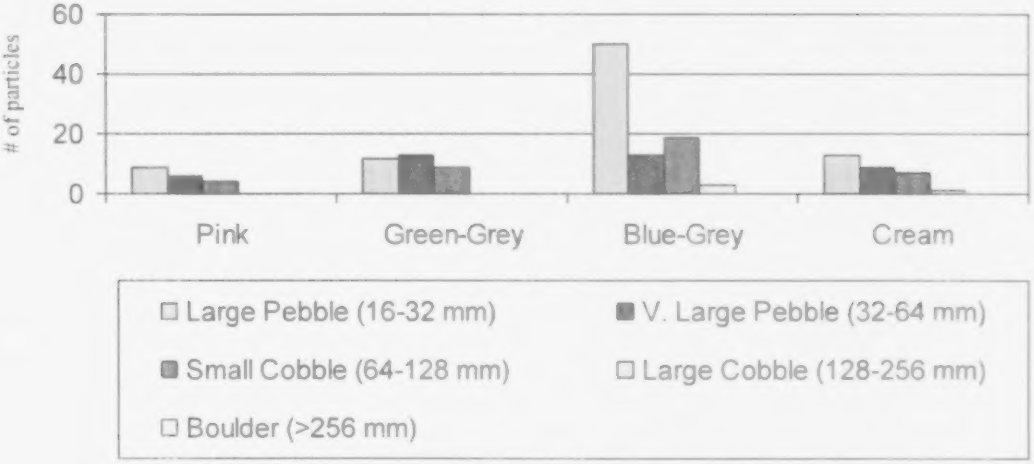
Average = 0.58 (Discoidal to Rod-shaped)
Standard deviation = 0.174

Color

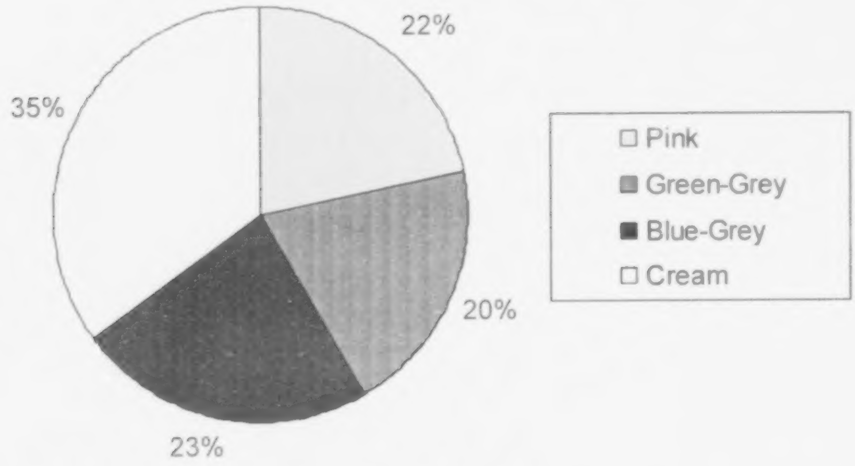
Sample # TW-023-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors:		X	

Color Classification vs Particle Class Size:



Average Color Distribution:



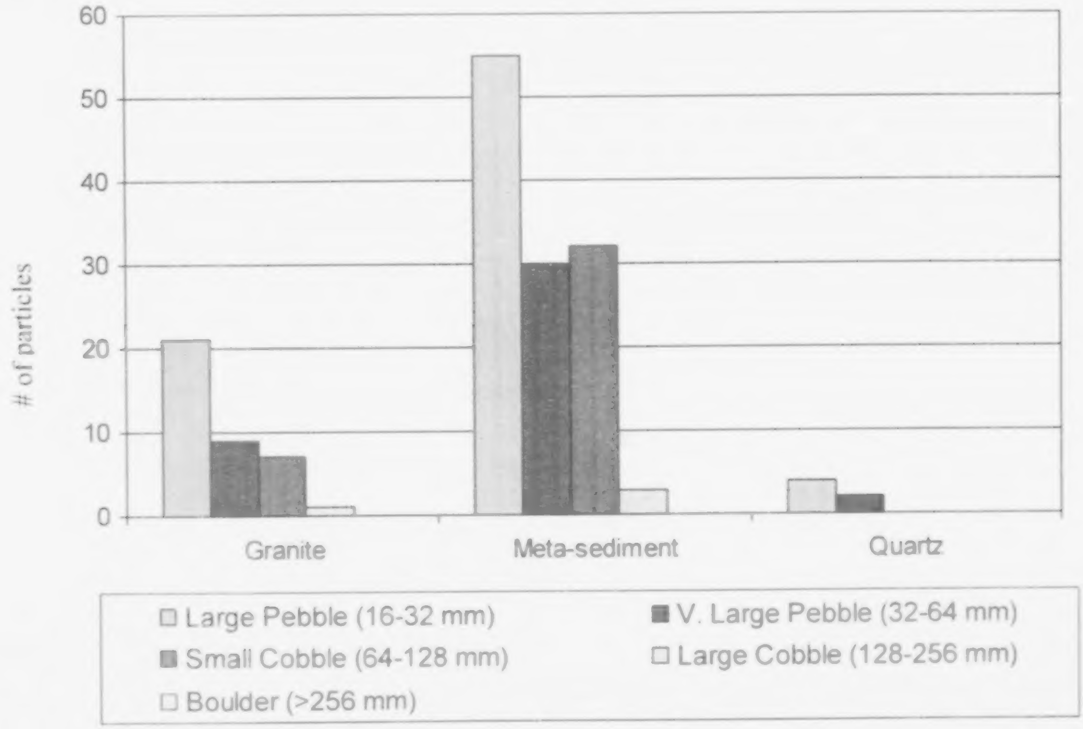
Rock Type

Number of Different Textural Types:

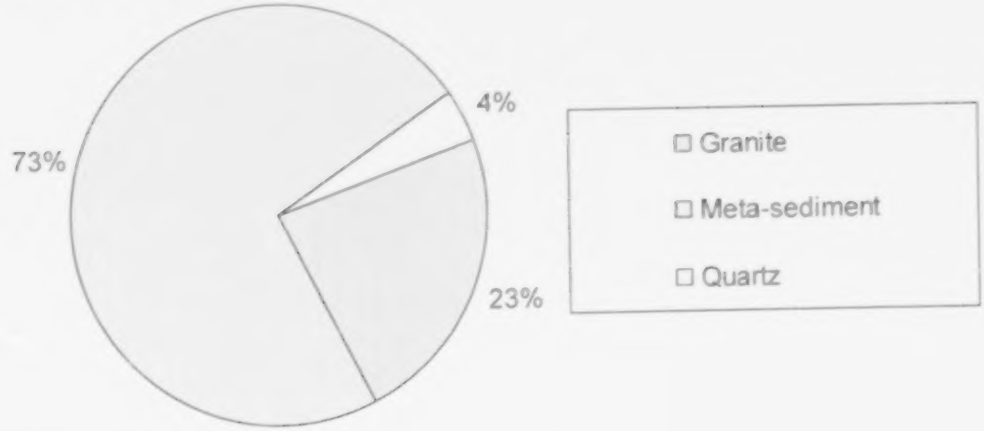
Sample # TW-023-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size:



Average Rock Type Distribution:



Sample # TW-023-01

Insitu pit run material and scree pile of large to very large pebble to very cobble from active pit north of Nackawic, York County, western New Brunswick

Comments: Almost 50% of sampled material from this active pit is small pebble or finer. Coarser materials are represented by large (51%) to very large (24%) pebble and small cobble (23%). There is an abundance of small boulders here as well. Rounded to very well rounded, discoidal shaped particles are typical. Material is however, limited to 4 main colors with light colors (pinks and cream) dominating. Meta-sedimentary and granite are the main lithotypes. Rated at slightly above a moderate potential (65%) for decorative aggregate (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Black Brook (Magundy)

Sample #: TW-028-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude:45° 46.803" Longitude: 67° 9.803"

Zone: 19 UTM Northing: 5071010 UTM Easting: 642750

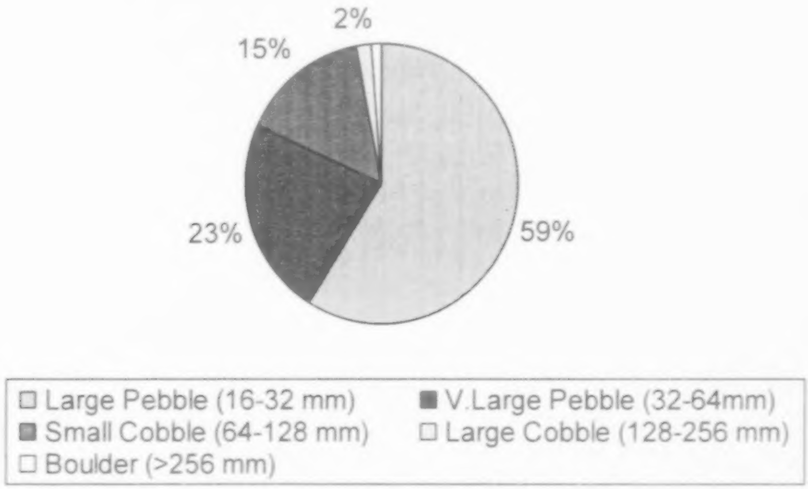
Description: Medium-sized (<1-2 ha) active pit, 100 meters west of Hwy # 635 and 2.5 km north of Magaguadavic.

Particle Size Classification:

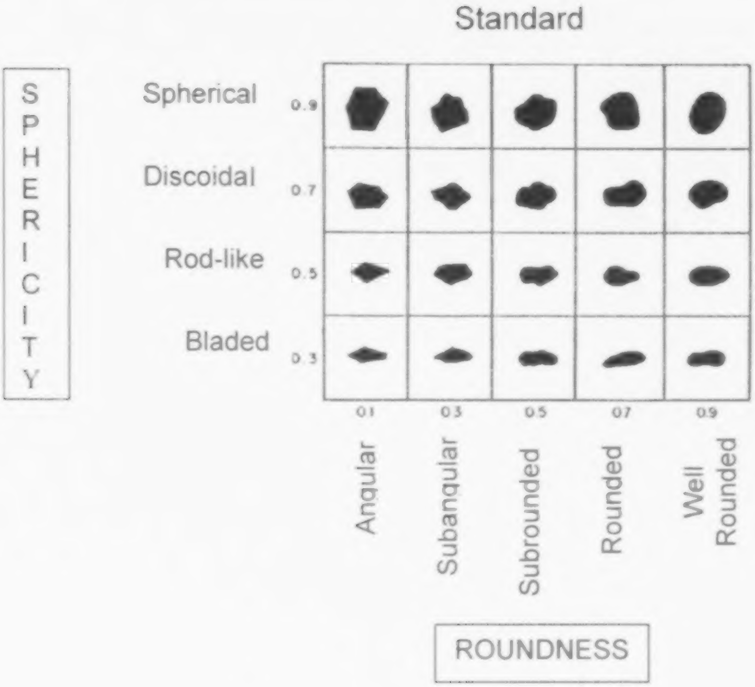
Pit–run Material

33 % clay to sand to small pebble (i.e. all material <25.4 mm or <1")	**67 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4 mm material

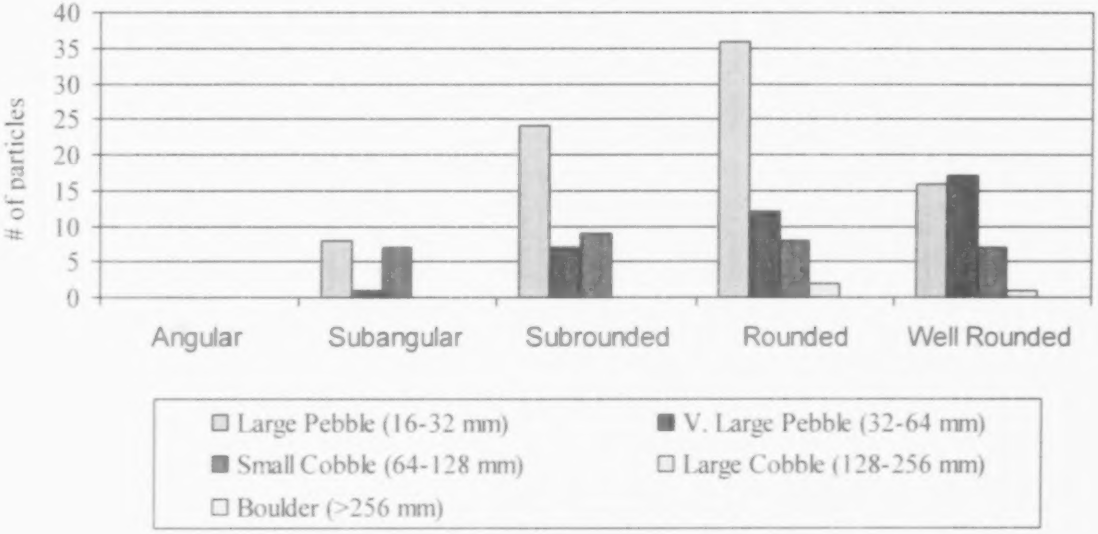


Roundness and Sphericity:



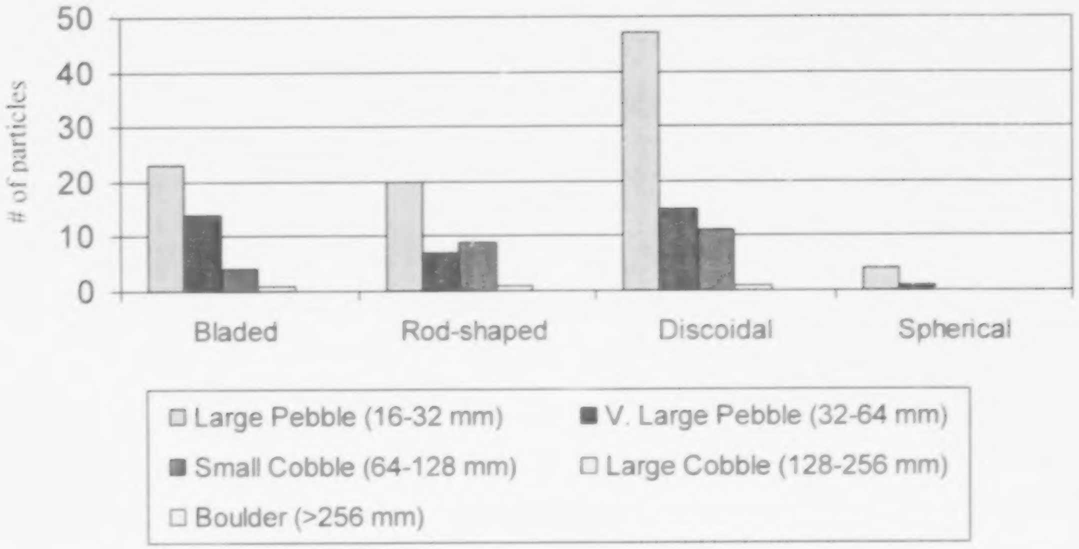
Roundness vs Particle Class Size

Sample #: TW-028-01

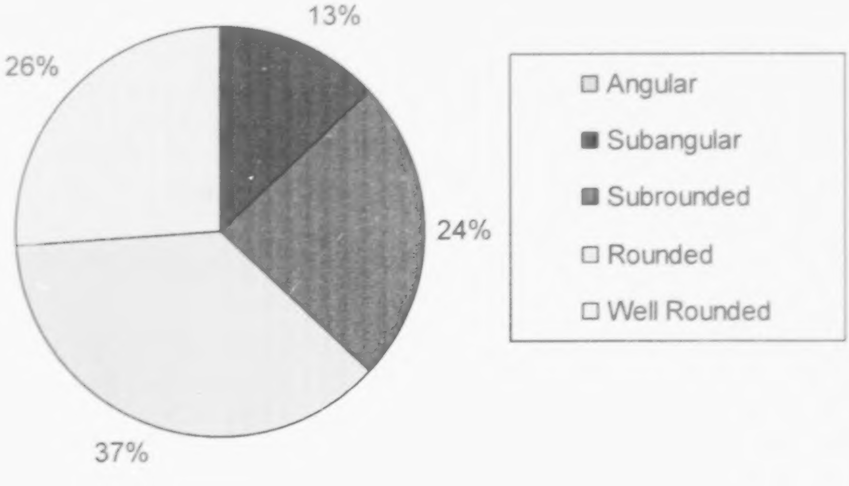


Sample # TW-028-01

Sphericity vs Particle Class Size

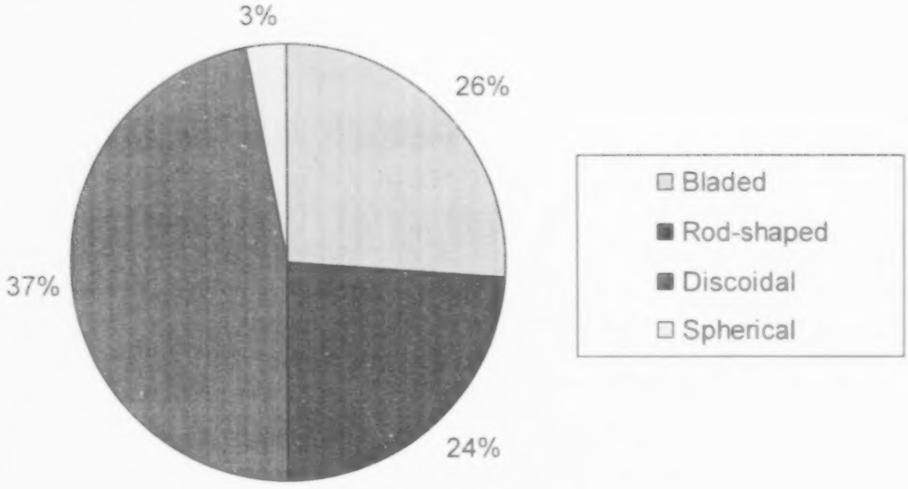


Average Roundness



Average = 0.55 (Rounded to Well Rounded)
Standard deviation = 0.178

Average Sphericity



Average = 0.72 (Discoidal to Bladed)
Standard deviation = 0.172

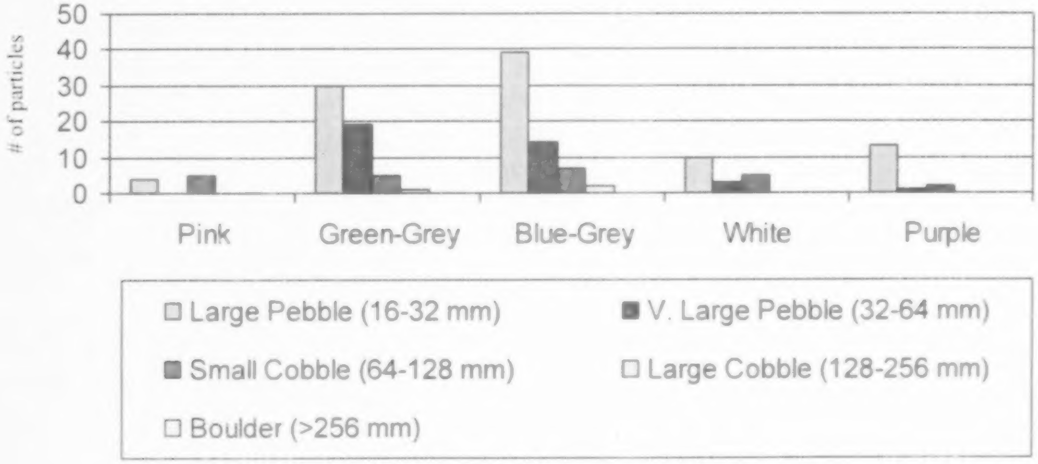
Color:

Sample # TW-028-01

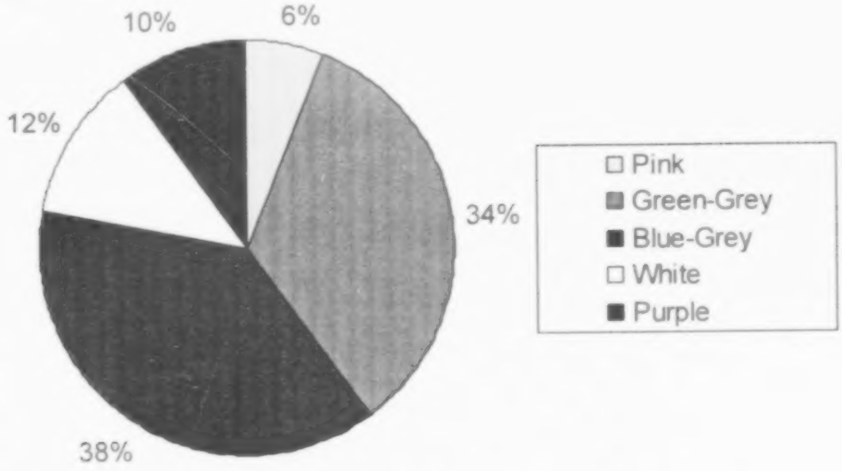
Number of Different Colors:

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size:



Average Color Distribution



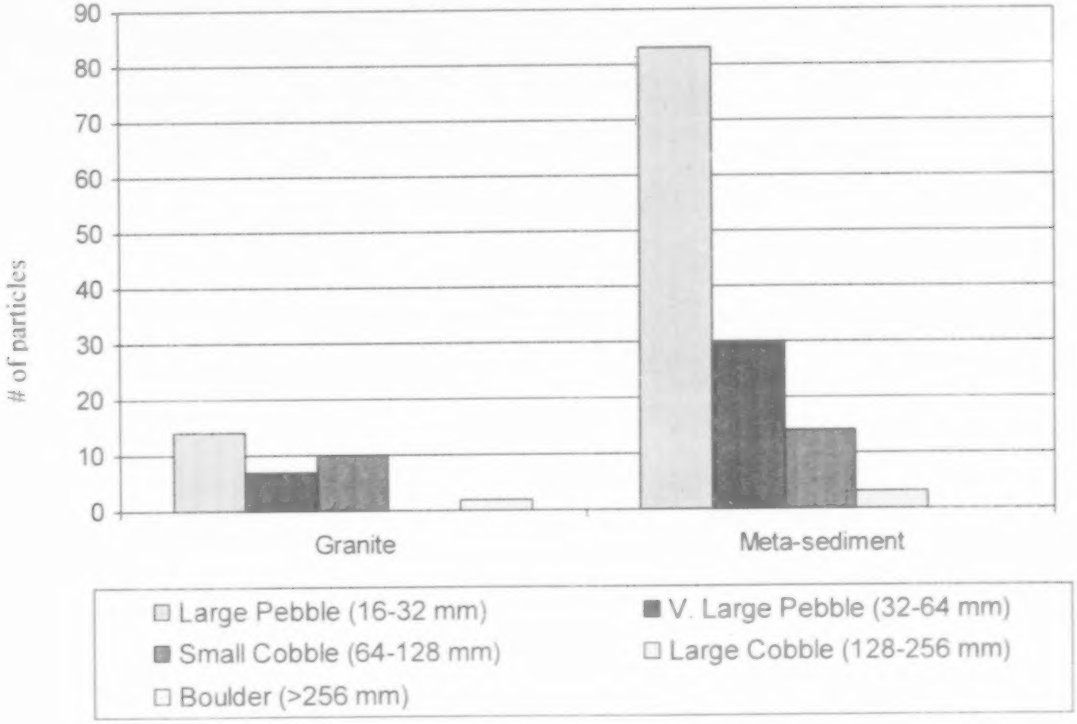
Rock Type:

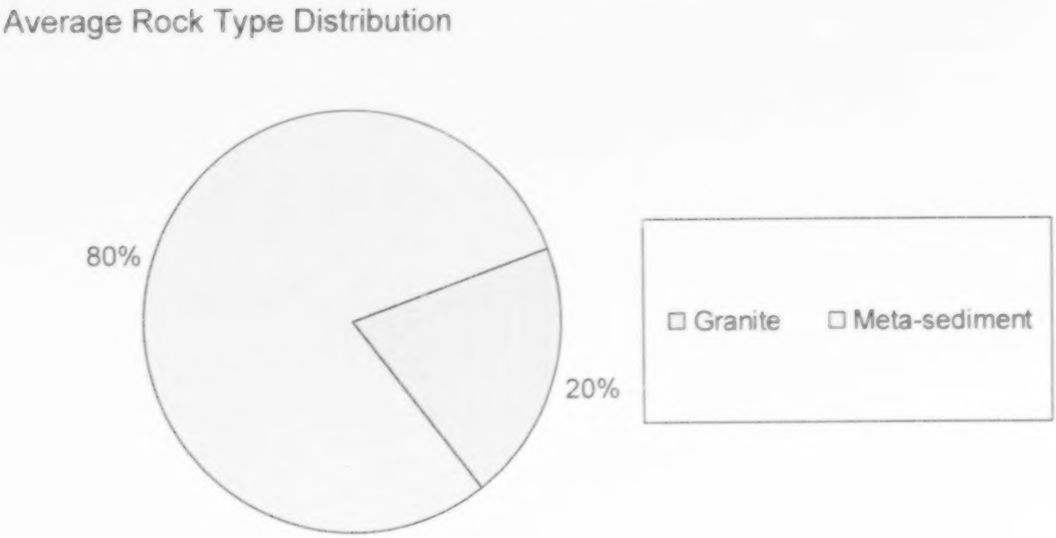
Number of Different Textural Types

Sample # TW-028-01

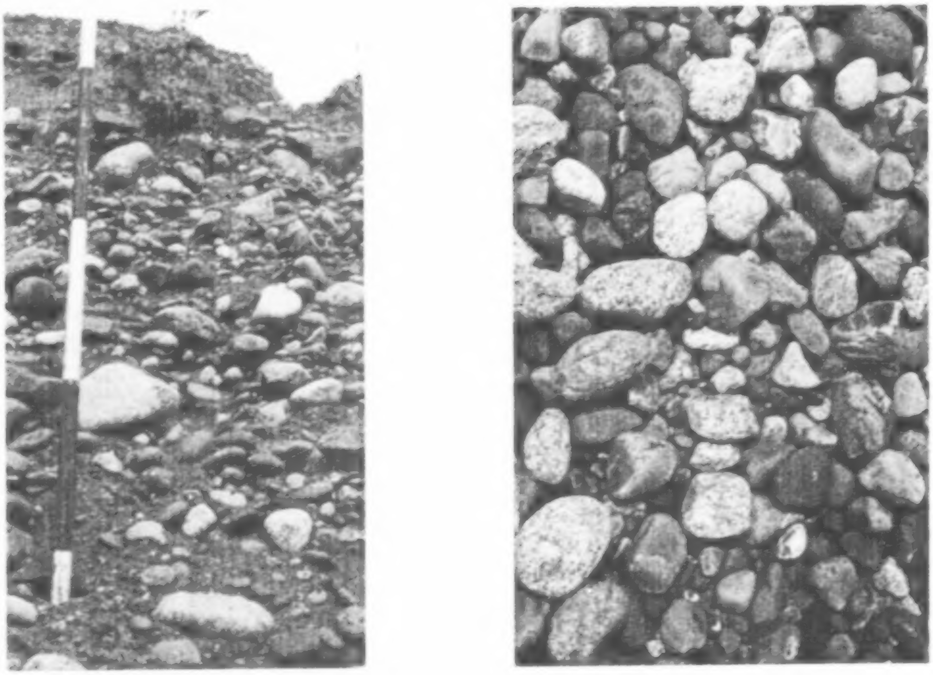
Limited (<2)	Several (2-4)	Many (>4)
X		

Rock Type vs Particle Class Size





Sample # TW-028-01



Typical pit face and scree pile of multi-colored medium to very large pebble to small cobble near Magundy, York County, southwestern New Brunswick.

Comments: This active pit appears to contain a substantial resource of colorful, medium pebble to large cobble (accounting for almost 70% of sampled material). The coarse fraction is comprised of rounded to well rounded material, discoidal in shape. A substantial part of the sized material is large (59%) and very large (23%) pebble with the balance comprising small cobble to boulder. A wide range of color is represented with green-grey and blue-grey among the most common. Rock types are limited primarily to meta-sedimentary rocks and granites. This site is considered as a moderate to high potential (68%) source of decorative material (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Mud Lake

Sample #: TW-029-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude: 45° 50.120" Longitude: 67° 10.083"

Zone: 19 UTM Northing: 5077500 UTM Easting: 642450

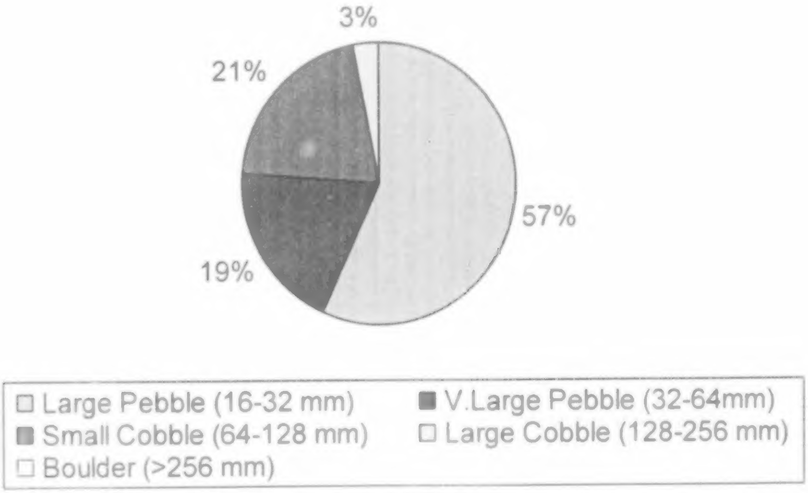
Description: Very small (<1/2 ha) inactive pit, <250 meters east of the Mud Lake, adjacent and east of the Holt Road.

Particle Size Classification:

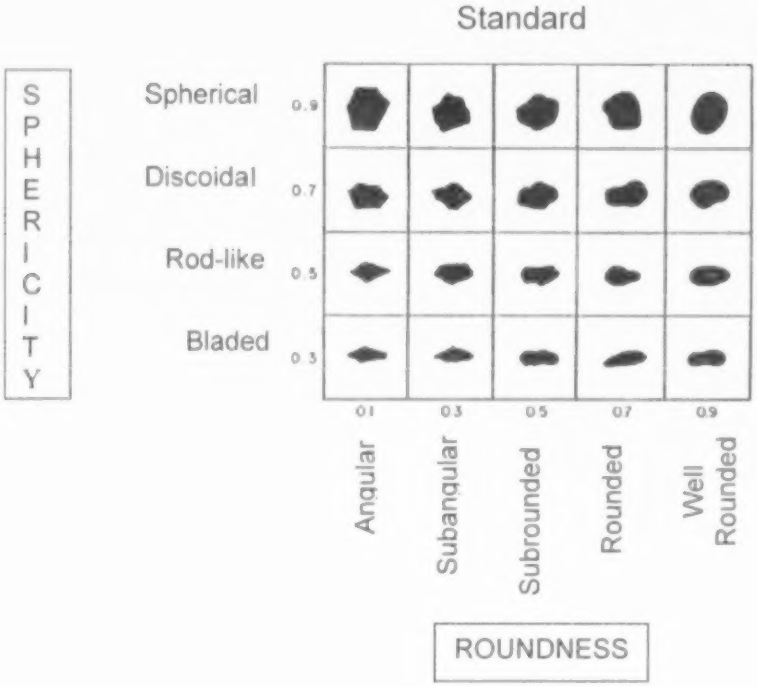
Pit–run Material

46 % clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**54 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

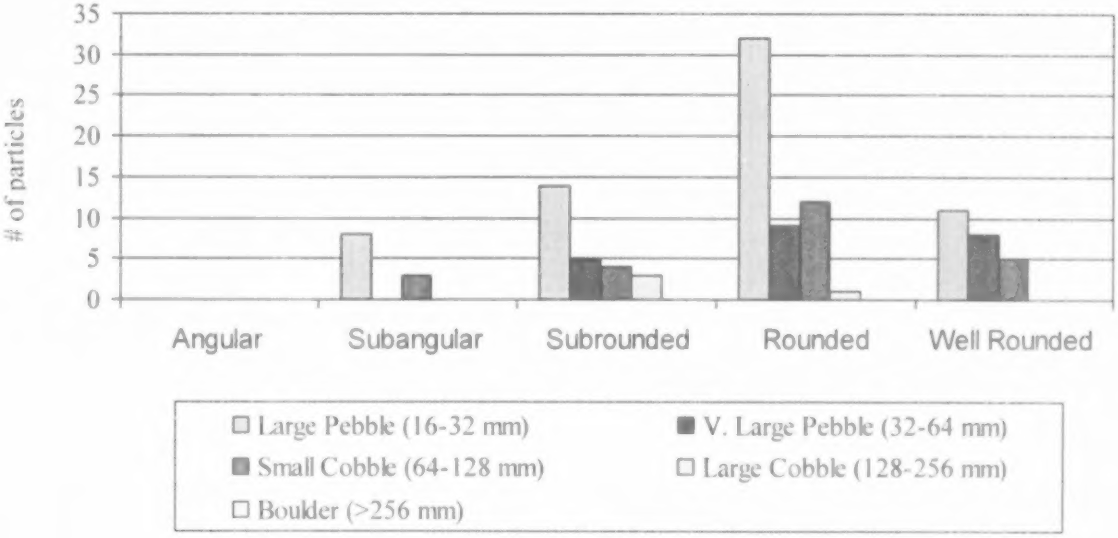


Roundness and Sphericity:



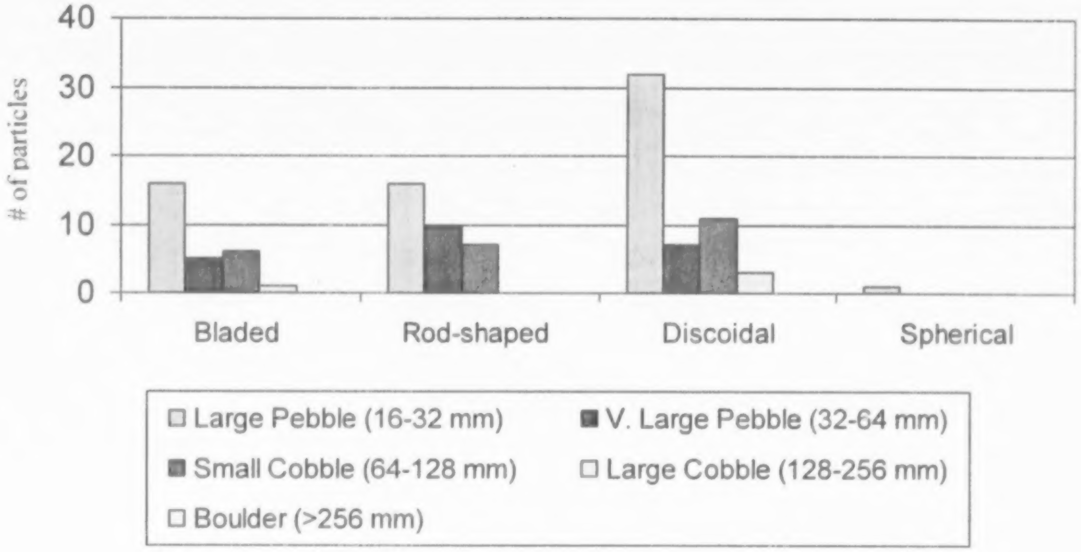
Roundness vs Particle Class Size

Sample #: TW-029-01

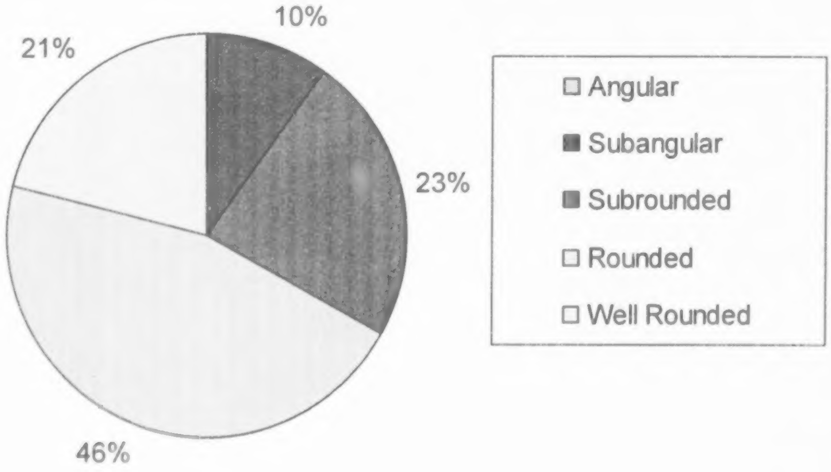


Sample # TW-029-01

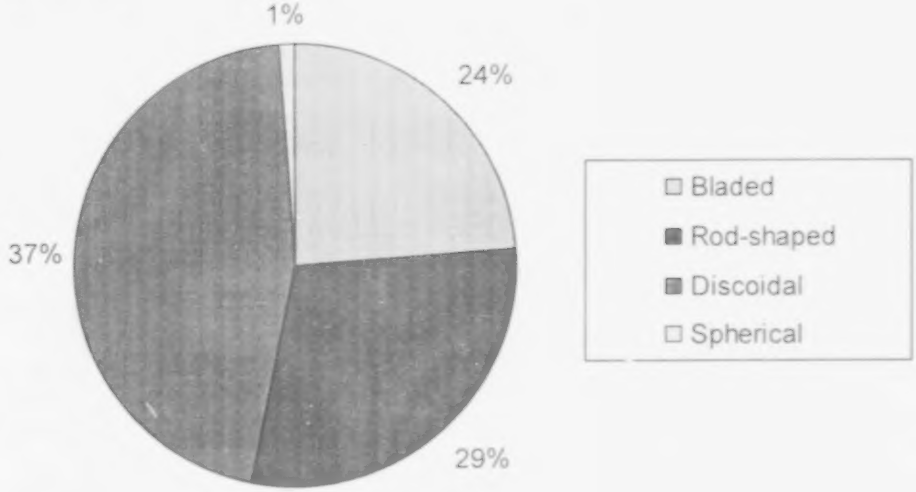
Sphericity vs Particle Class Size



Average Roundness



Average = 0.66 (Rounded to Well Rounded)
Standard deviation = 0.177



Average Sphericity

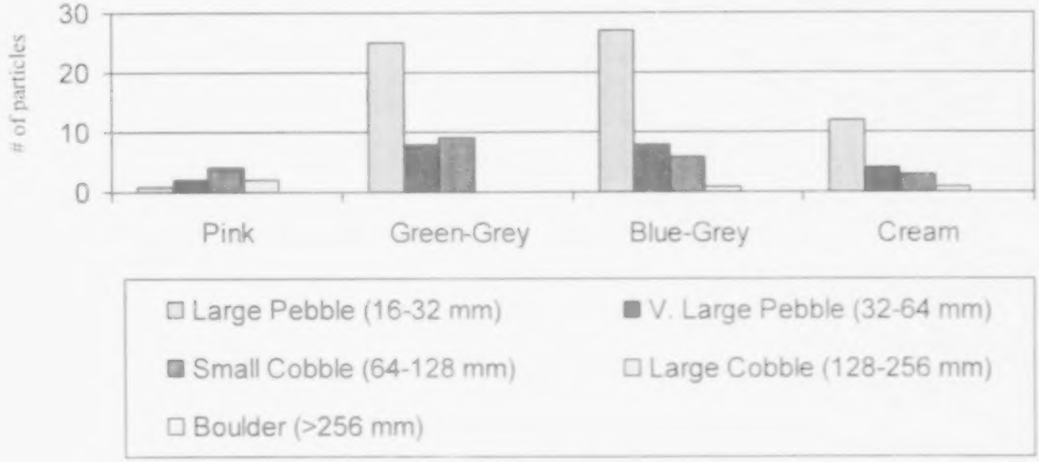
Average = 0.55 (Discoidal to Rod-shaped)
Standard deviation = 0.166

Color:

Sample # TW-029-01

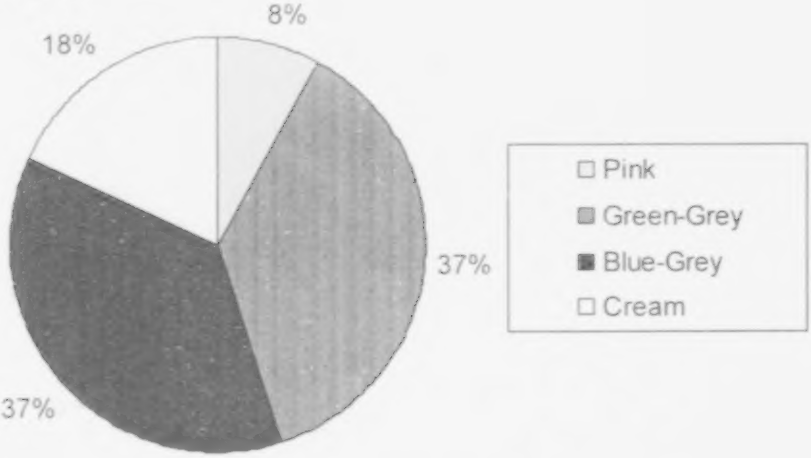
Number of Different Colors:

Limited (<2)	Several (2-4)	Many (>4)
		X



Color Classification vs Particle Class Size

Average Color:



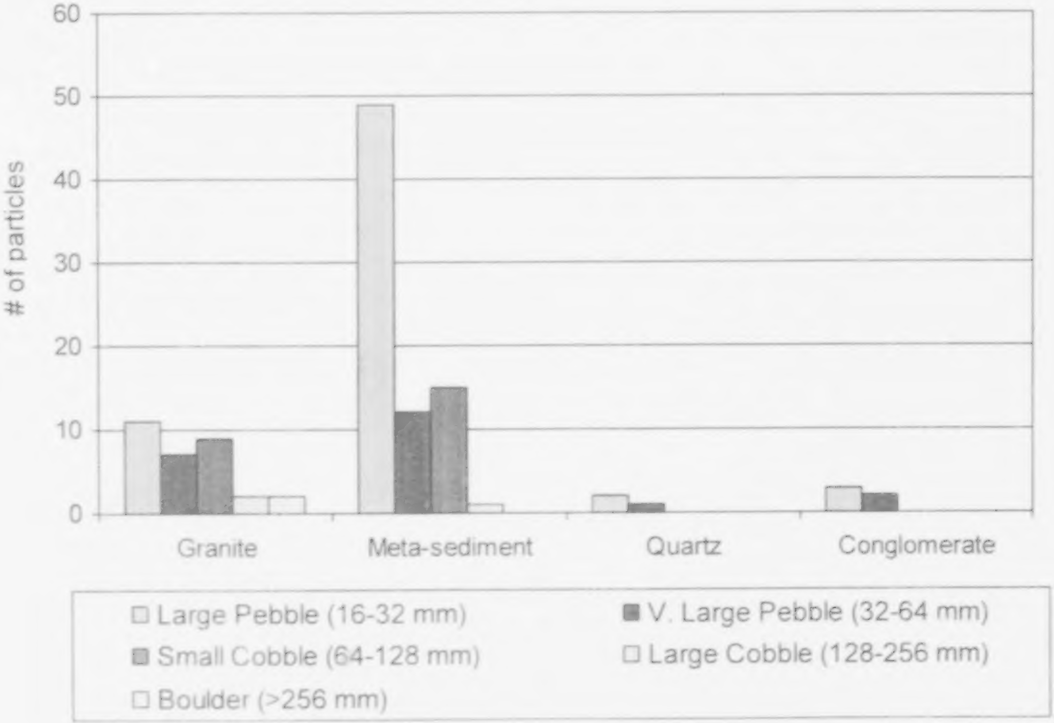
Rock Type:

Number of Different Textural Types

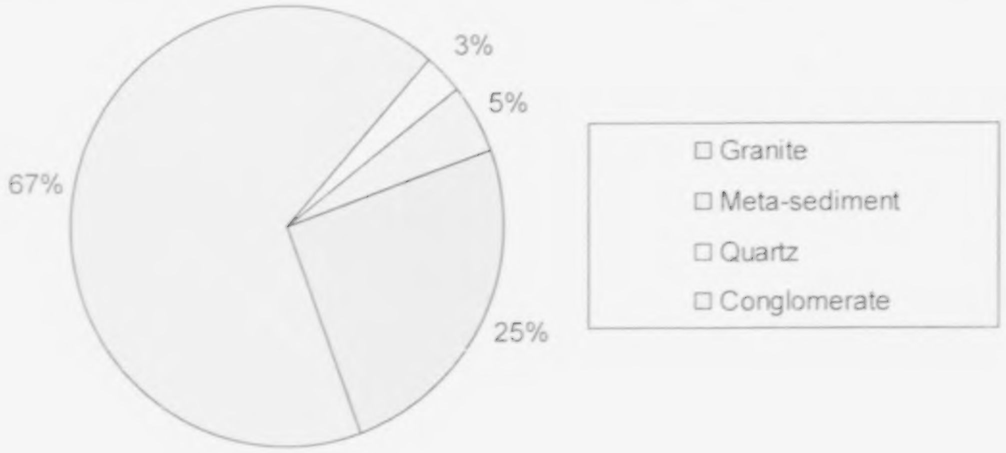
Sample # TW-029-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

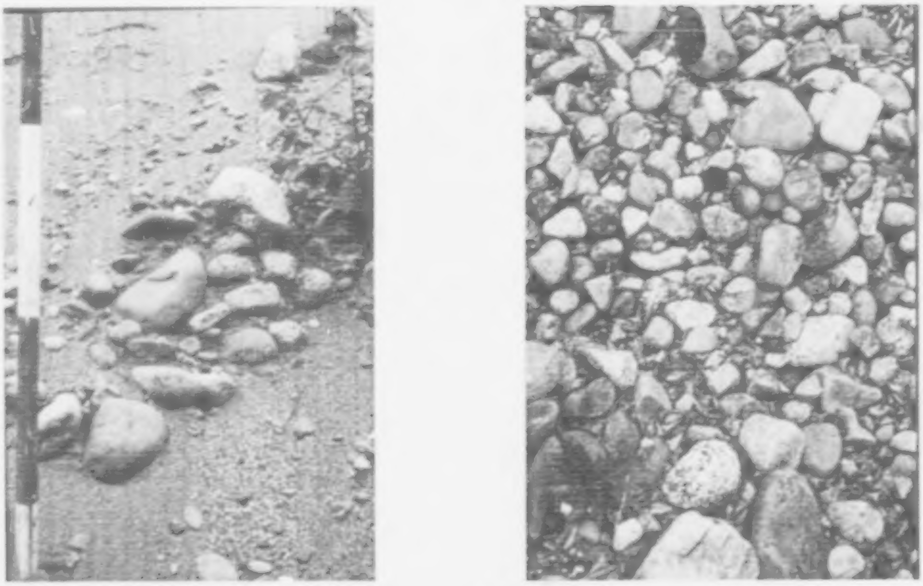
Rock Type vs Particle Class Size



Average Rock Type



Sample # TW-029-01



Pit face and typical scree pile medium to very large pebble and small cobble, north of Blaney Ridge, York County, southwestern New Brunswick

Comments: Slightly over 50% of sampled material from this abandoned pit is medium pebble or coarser. Of this fraction almost 25 % is small and large cobble. Most particles are rounded to well rounded and discoidal to rod-shaped. Colors are typically green-grey and blue-grey with pink and cream providing an interesting contrast. Meta-sedimentary rocks and granite account for almost 80% of the population. A moderate to high (67%) potential for decorative aggregate is considered although the resource appears somewhat limited (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Slugundy Ponds

Sample #: TW-030-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude: 45° 50.595" Longitude: 67° 10.133"

Zone: 19 UTM Northing: 5079400 UTM Easting: 640900

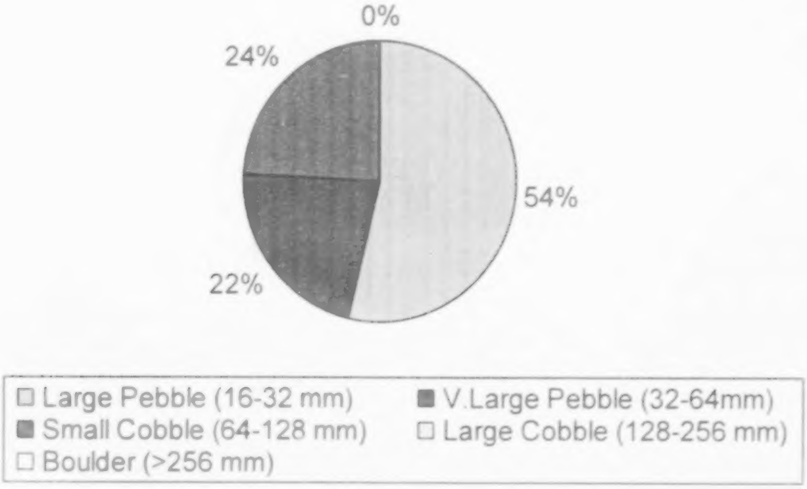
Description: Large (>3 ha) active pit <100 meters west of the Holt Road and 7-8 km north of its intersection with Hwy # 635 at Blaney Ridge.

Particle Size Classification:

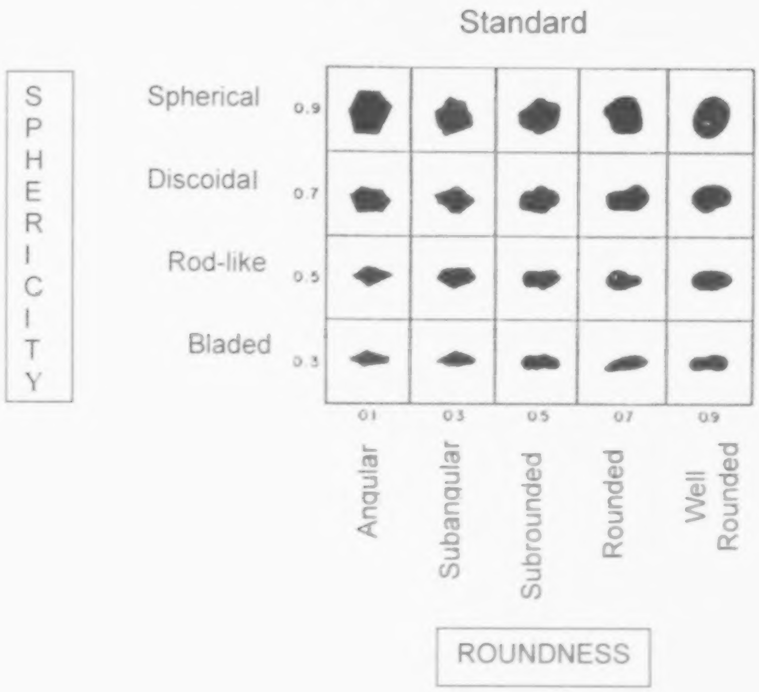
Pit–run Material

38 % clay, sand and small pebbles (i.e. all materials <25.4 mm or <1")	**62 %** medium to very large pebble and cobble (i.e. all materials > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

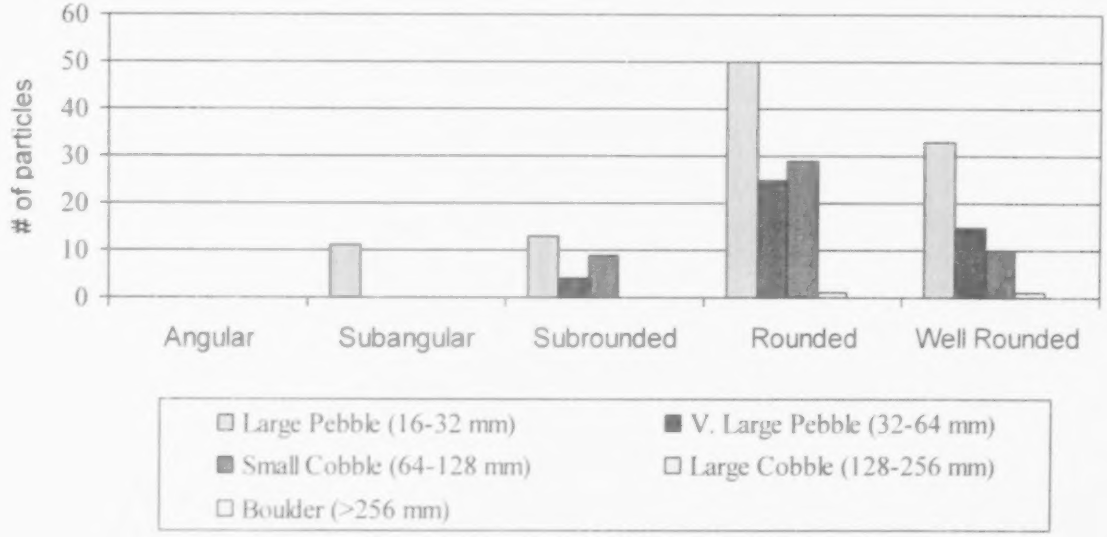


Roundness and Sphericity:



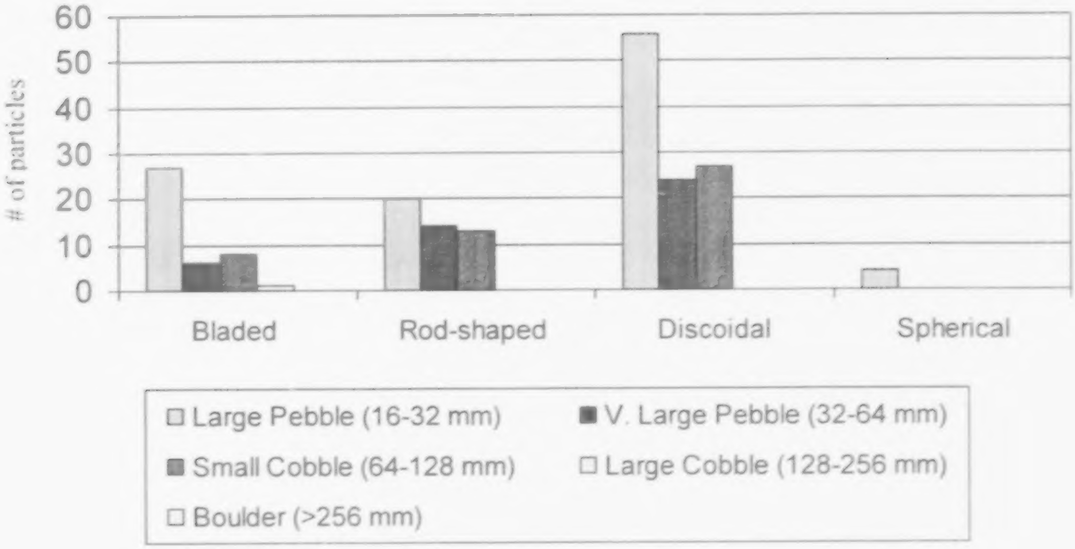
Roundness vs Particle Class Size

Sample #: TW-030-01

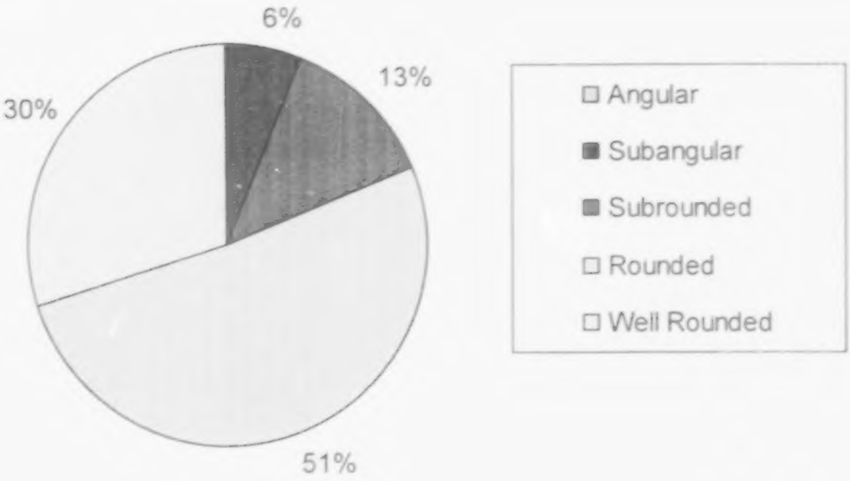


Sample # TW-030-01

Sphericity vs Particle Class Size

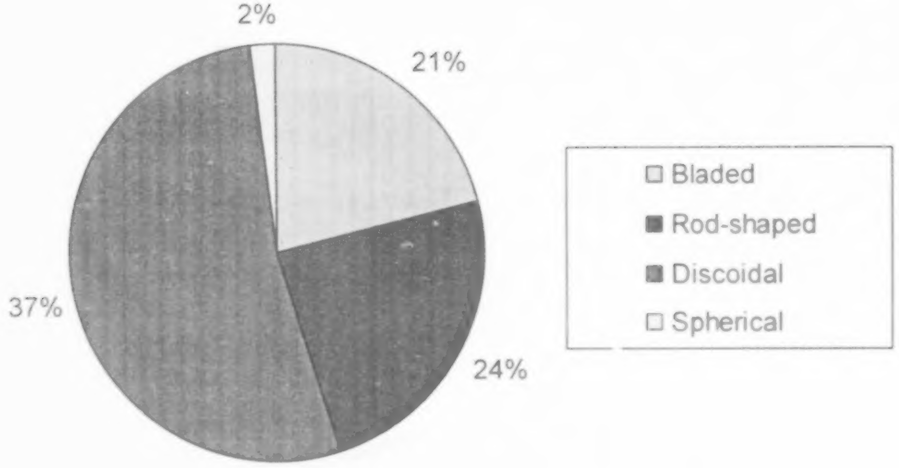


Average Roundness



Average = 0.71 (Rounded to Well Rounded)
Standard deviation = 0.129

Average Sphericity



Average = 0.57 (Discoidal to Rod-shaped)
Standard deviation = 0.166

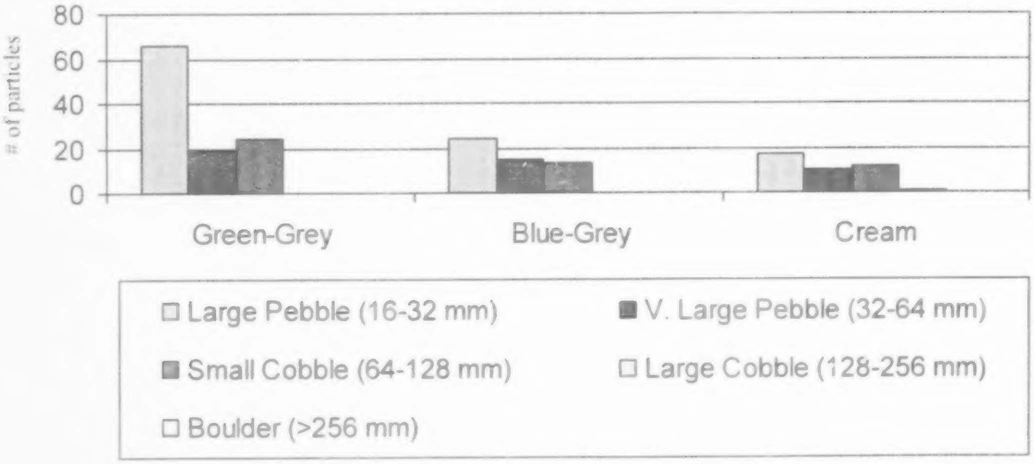
Color:

Sample # TW-030-01

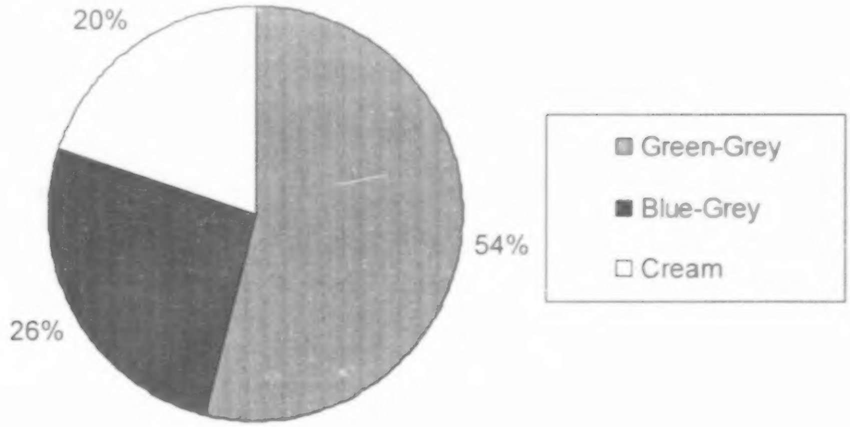
Number of Different Colors:

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



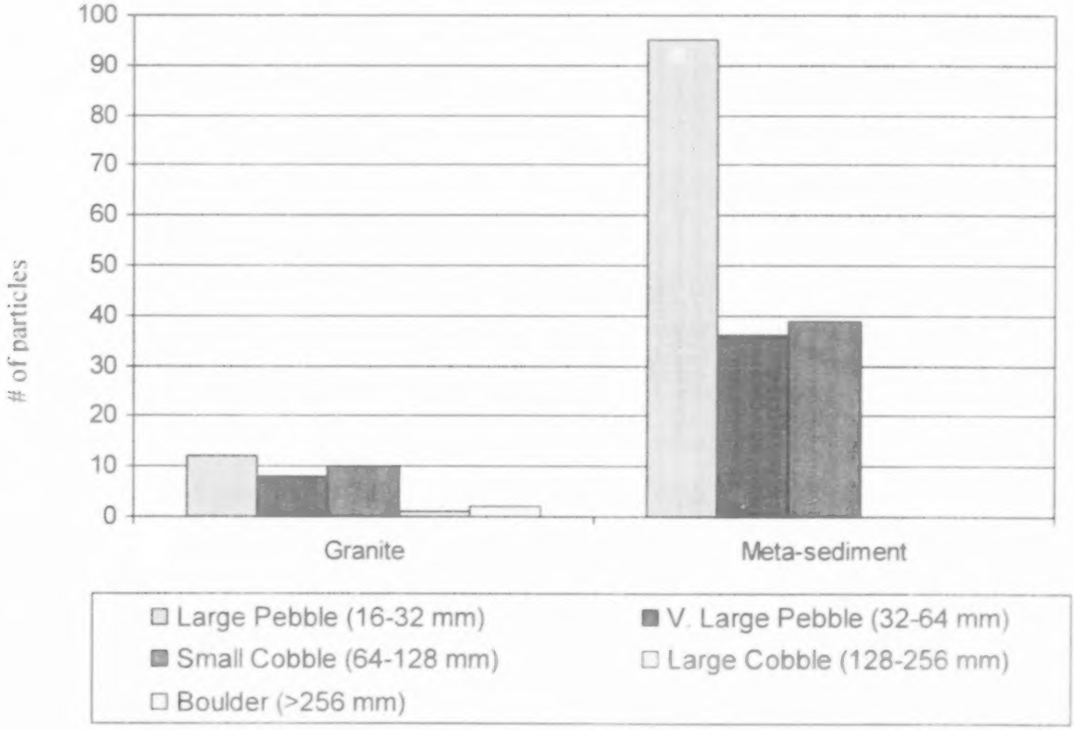
Rock Type:

Number of Different Textural Types:

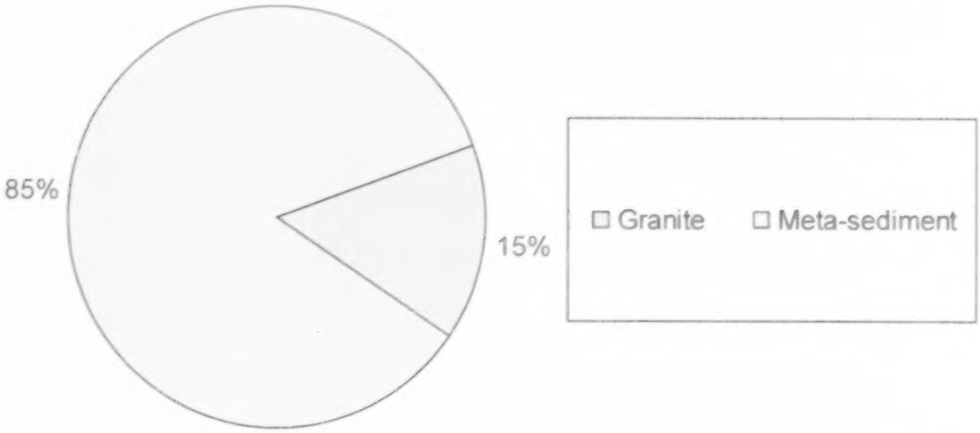
Sample # TW-030-01

Limited (<2)	Several (2-4)	Many (>4)
X		

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-030-01

Typical scree pile

Typical crushed material

Small cobble scree pile

Typical pit face of insitu material from a very large active pit near Slugundy Ponds, north of Blaney Ridge, York County., southwestern New Brunswick

Comments: Over 60% of sampled material from this very large active pit is coarser than medium pebble with a very large pebble, small cobble to boulder population accounting for 45%. Most material is rounded to well rounded and discoidal to rod-shaped. Color is somewhat limited to blue-grey and green-grey but sufficient number cream colored particles result in rather striking contrasts. Meta-sedimentary rocks and granite are among the most prominent lithotypes. With a significant population of contrasting sizes and limited colors this resource appears to have a moderate (62%) potential for decorative purposes (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Little Pokiok Stream

Sample #: TW-031-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude: 45° 51.427" Longitude: 67° 11.079"

Zone: 19 UTM Northing: 5081750 UTM Easting: 639450

Description: A small inactive pit almost 10 km north on Blaney Ridge adjacent the Holt Road.

Comments: Pit not sampled but material (pebbles cobble and boulders appear similar to that at site TW-029-01 and TW-030-01. Not rated.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lake Road

Sample #: TW-032-01 **Year:** 2001

Location: NTS: 21 G/14 County: York

Latitude: 45° 46.538" Longitude: 67° 3.930"

Zone: 19 UTM Northing: 5070800 UTM Easting: 650300

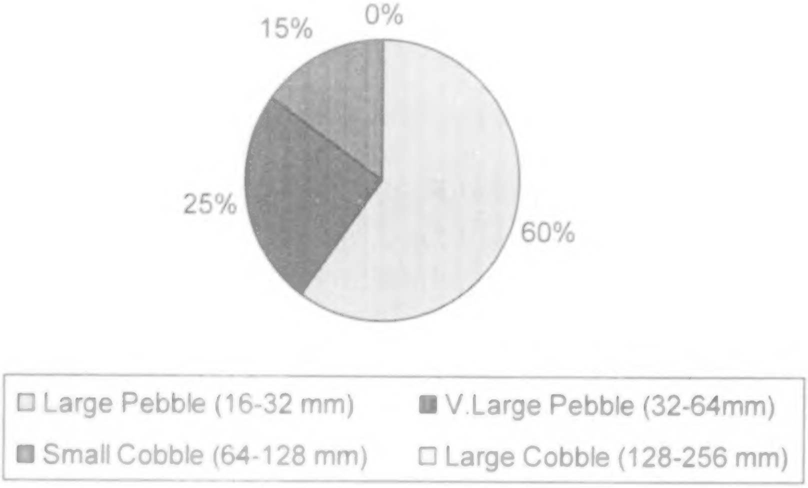
Description: A narrow (<50 m wide) medium-sized (1-2 ha) active pit that extends 500-700 m. Situated about 2.5 km southwest of Lake Road and 1.4 km northeast of Harvey Lake.

Particle Size Classification:

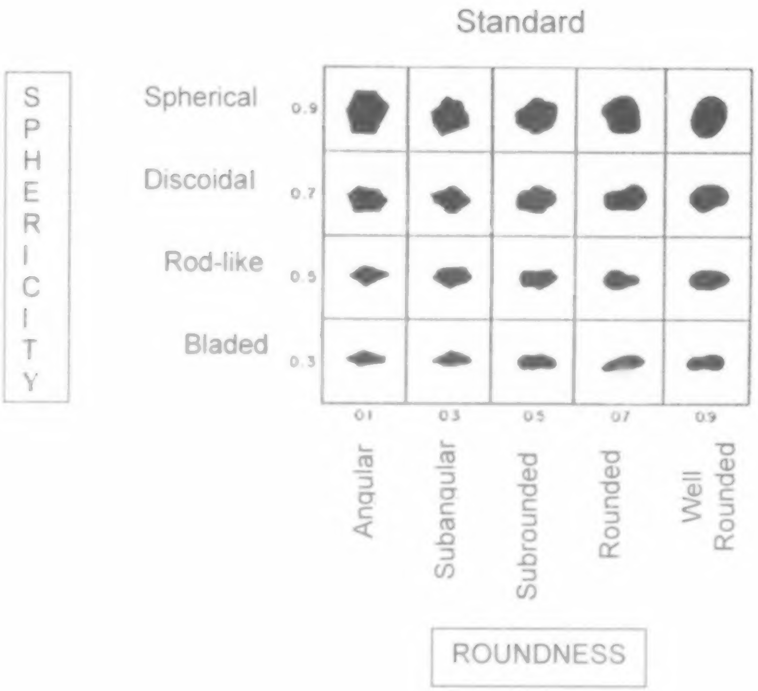
Pit–run Material

65 % clay, sand and small pebbles (i.e. all material<25.4 mm or <1")	**35 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

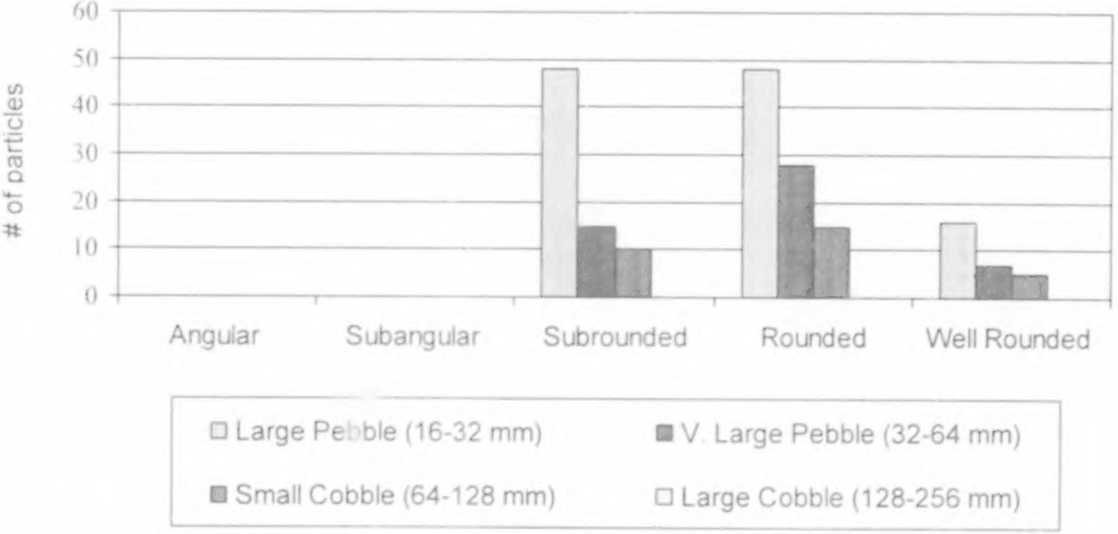


Roundness and Sphericity



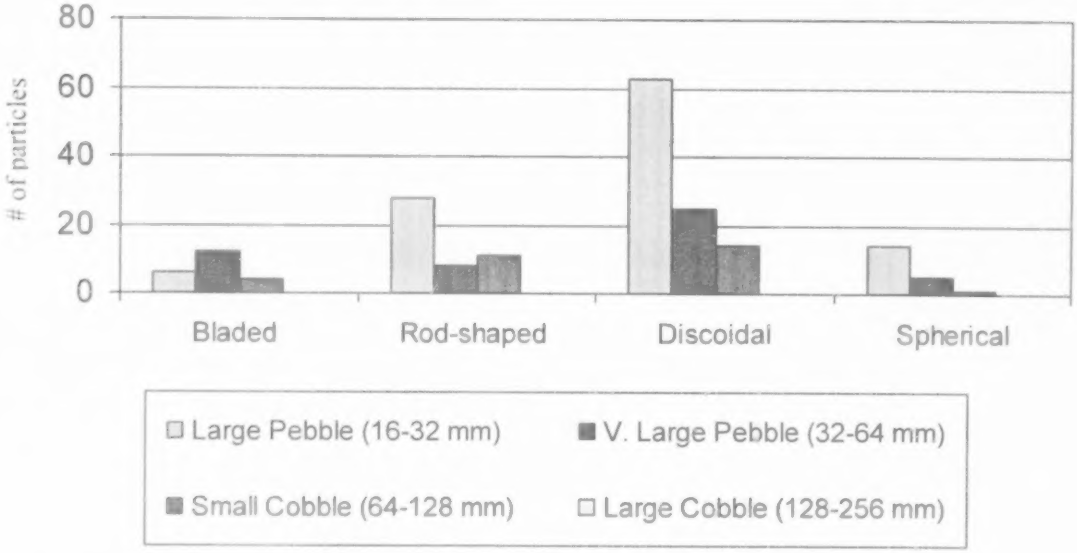
Roundness vs Particle Class Size

Sample #: TW-032-01

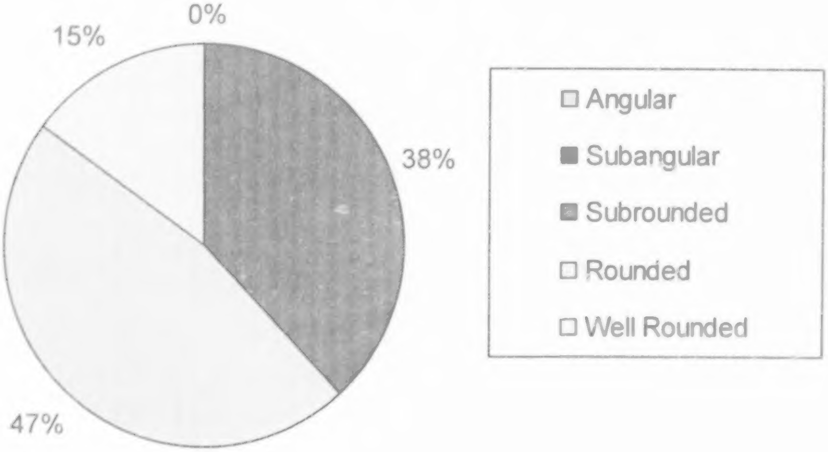


Sample # TW-032-01

Sphericity vs Particle Class Size

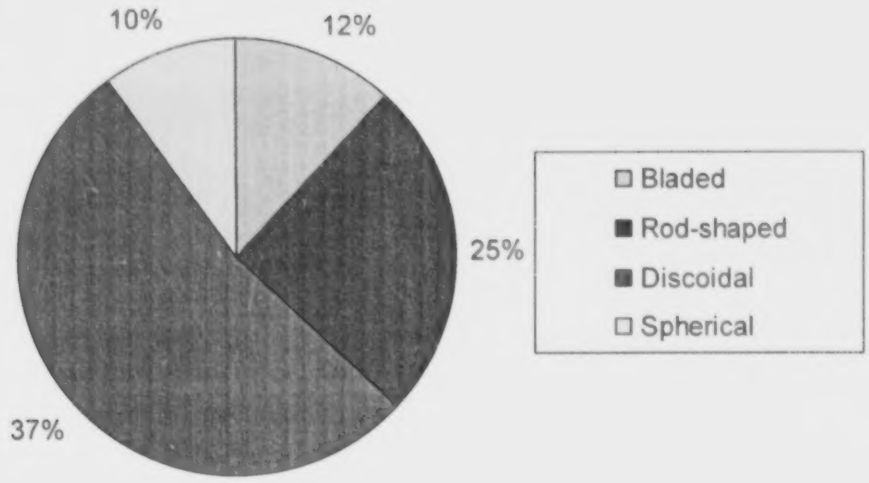


Average Roundness



Average = 0.58 (Rounded to Well Rounded)
Standard deviation = 0.154

Average Sphericity



Average = 0.71 (Discoidal to Rod-Shaped)
Standard deviation = 0.162

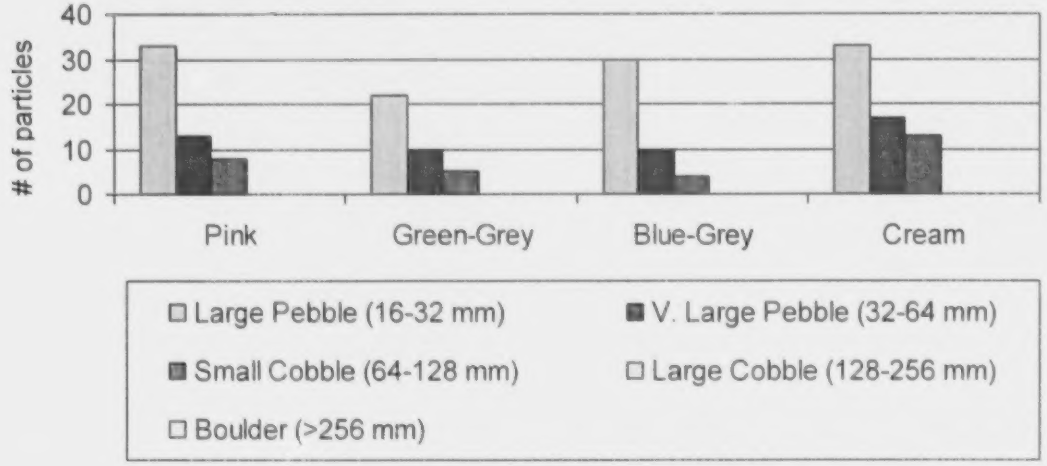
Color:

Sample # TW-032-01

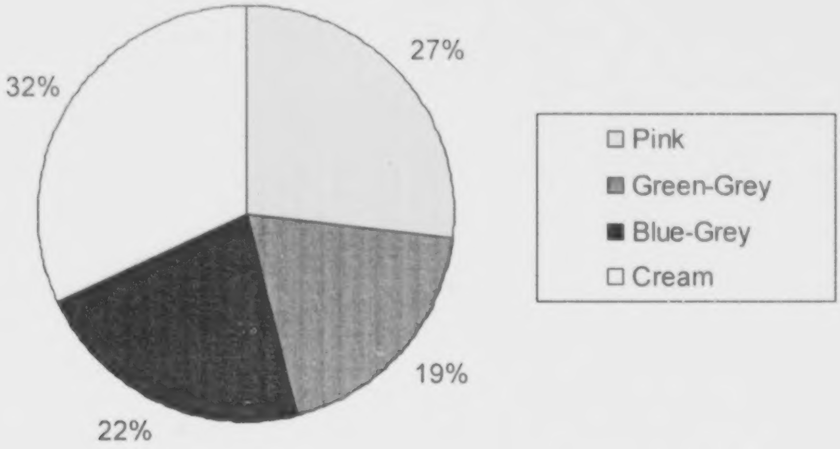
Number of Different Colors:

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



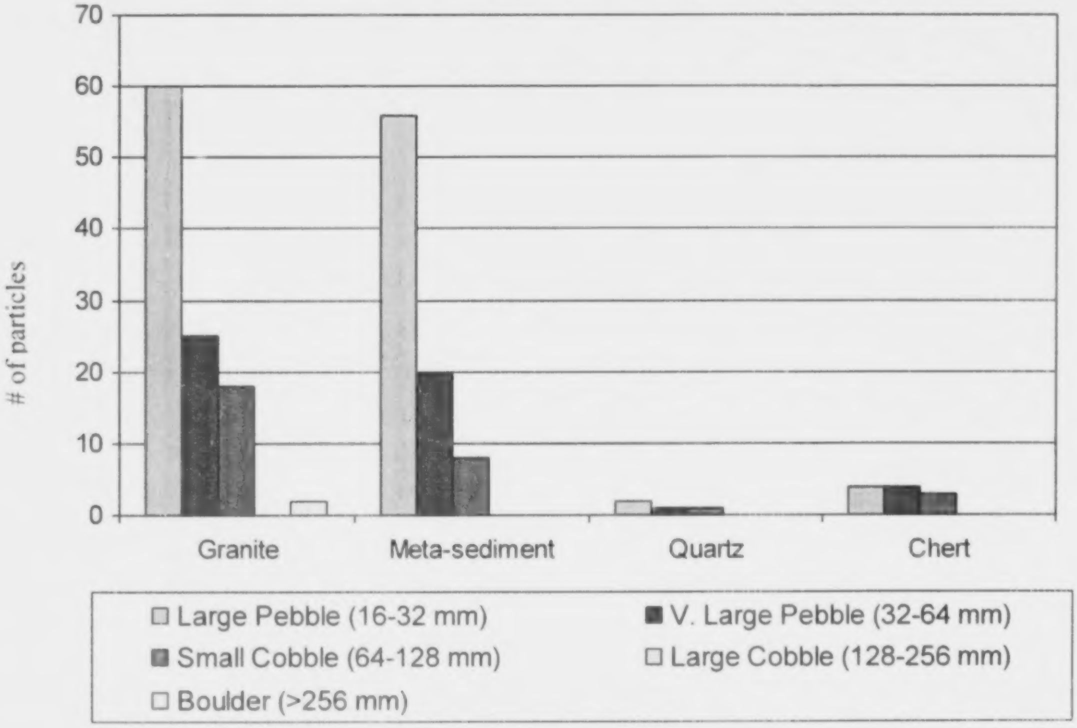
Rock Type:

Number of Different Textural Types

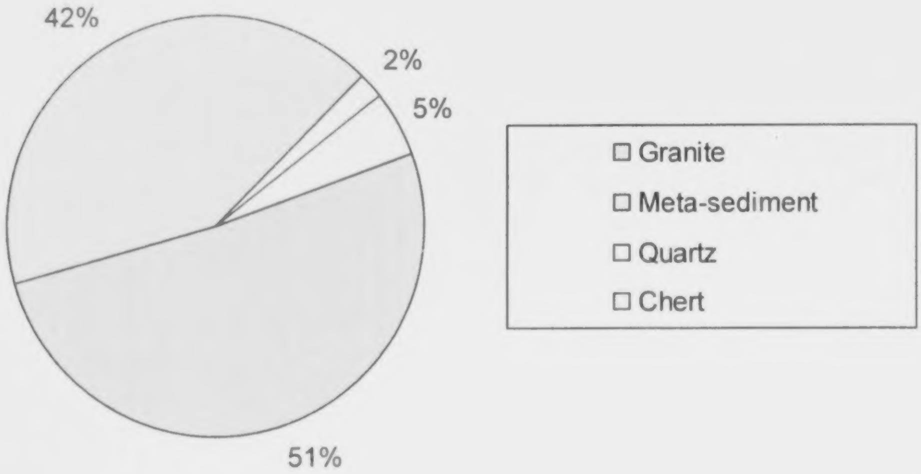
Sample # TW-032-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

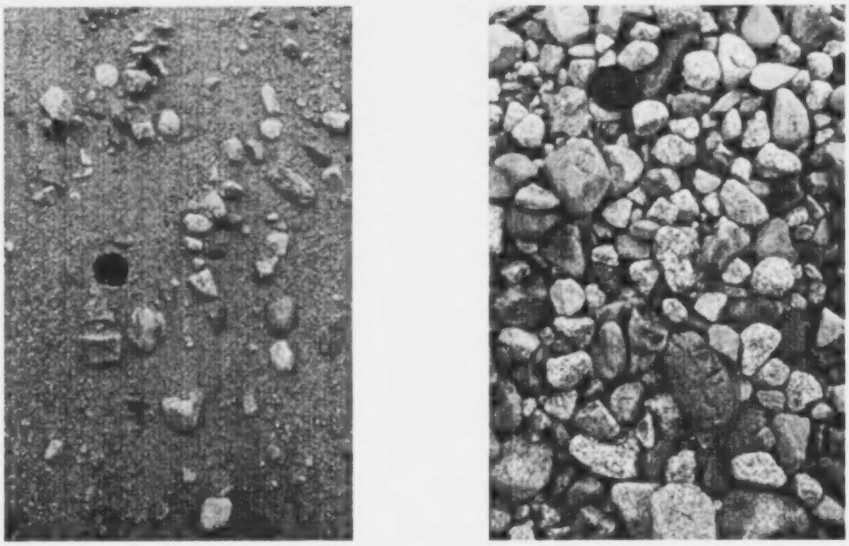
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-032-01



Typical pit face dominated by fine material with a coarse fraction characterized by large to very large, pink to cream colored pebbles, near Lake Road, York County, southwestern New Brunswick

Comments: Sample from this small active pit is 2/3 sand, small pebble and finer material. The balance is primarily rounded to well rounded, discoidal to rod-shaped large pebble (60%), very large pebble (25%) and small cobble (15%). There appears to be a relatively even distribution of color here with pink and cream slightly more abundant than green-grey and blue-grey. Granite makes up a large portion of the rock type. This pit appears to have reasonable potential for finer, highly colorful rounded material although the resource may be limited in terms of available tonnage. It is rated as having moderate (60%) development potential for decorative purposes (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: First Lake

Sample #: TW-033-01

Year: 2001

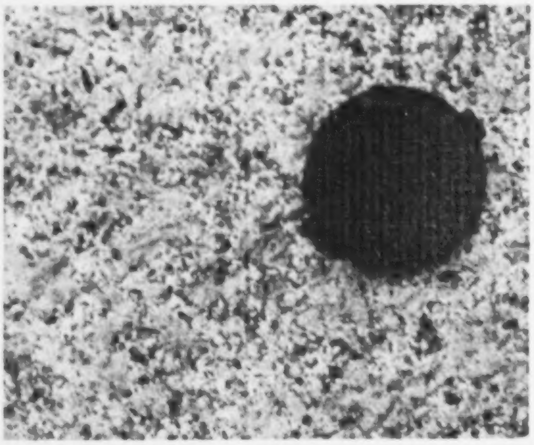
Location: NTS: 21 G/11 County: York

Latitude: 45° 36.148" Longitude: 67° 25.497"

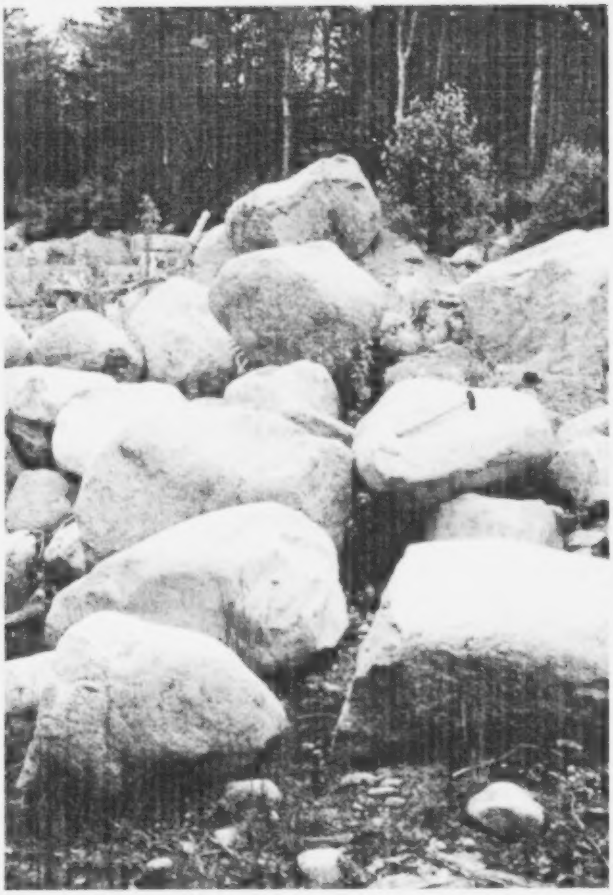
Zone: 19 UTM Northing: 5051750 UTM Easting: 622750

Description: Situated 7.5 km due west of the village of McAdam, adjacent Highway 630, 4.5 km north of its intersection with Highway 4.

Sample # TW-033-01



Medium -to coarse-grained pink to white granite, near First Lake, 7-8 km west of the Village of McAdam, in the southwestern part of York County, southwestern New Brunswick



Small stock pile of "white ", medium- to coarse-grained rounded granite boulders near First Lake, 7-8 km west of the Village of McAdam, in southwestern part of York County, southwestern New Brunswick

Comments: Small stock pile of "white " medium- to coarse-grained rounded boulders up to 2-3 meters across. Less than 10% of boulders other rock types.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: White Beaver Brook (north) - McAdam

Sample #: TW-034A-01

Year: 2001

Location: NTS: 21 G/11 County: York

Latitude: 45° 36.520" Longitude: 67° 17.817"

Zone: 19 UTM Northing: 5051550 UTM Easting: 633000

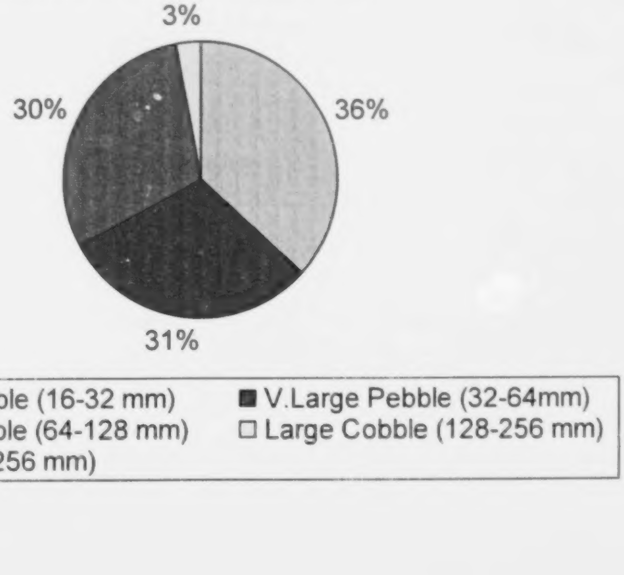
Description: A narrow (<100-200 m wide) ridge comprised of several connected, small to large (>2 ha) inactive pits, east and within 500 m of White Beaver Brook, 1 to 2 km north of Hwy #4.

Particle Size Classification:

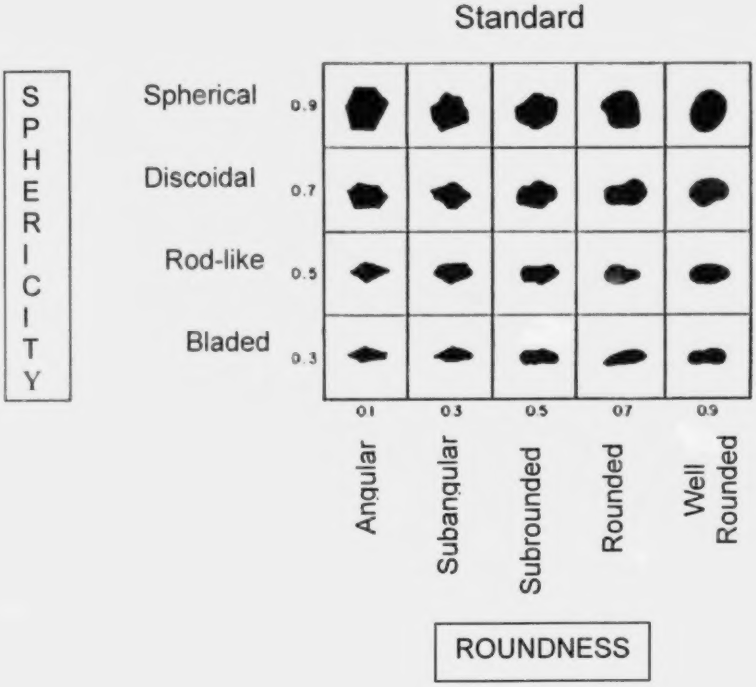
Pit–run Material

41 % clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

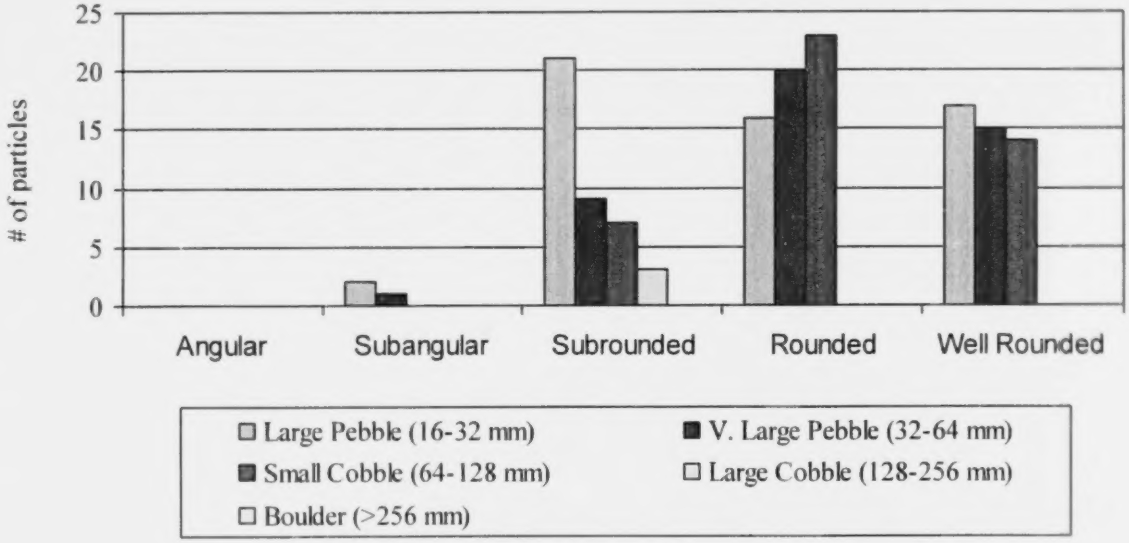


Roundness and Sphericity:



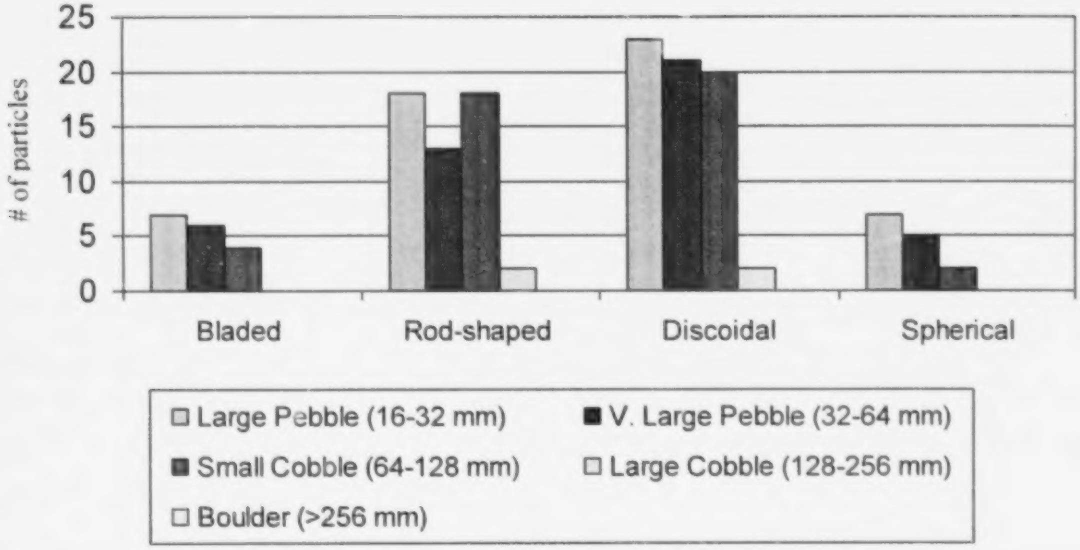
Roundness vs Particle Class Size

Sample #: TW-034A-01

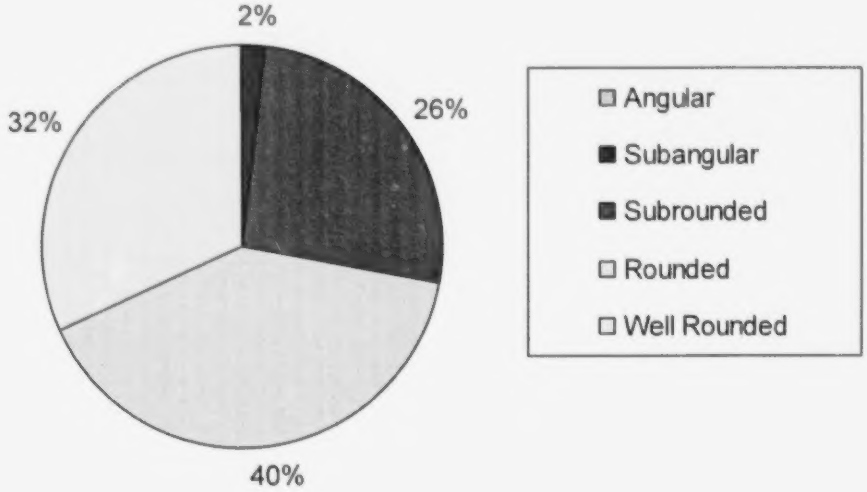


Sample # TW-034A-01

Sphericity vs Particle Class Size

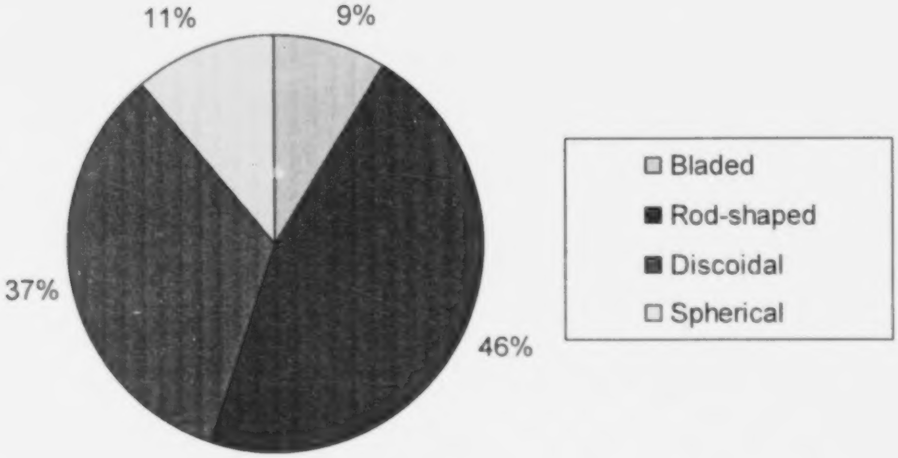


Average Roundness



Average = 0.70 (Rounded to Well Rounded)
Standard deviation = 0.163

Average Sphericity



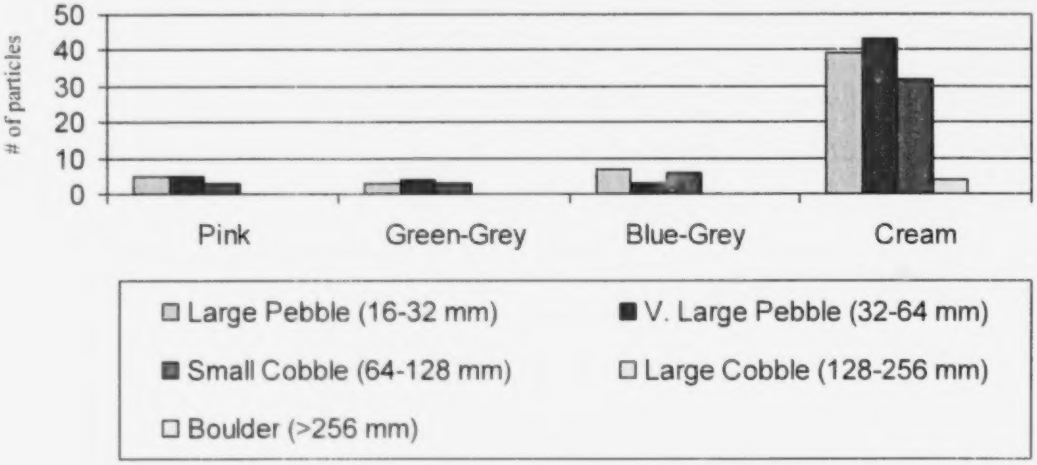
Average = 0.60 (Rod-shaped to Discoidal)
Standard deviation = 0.164

Color:

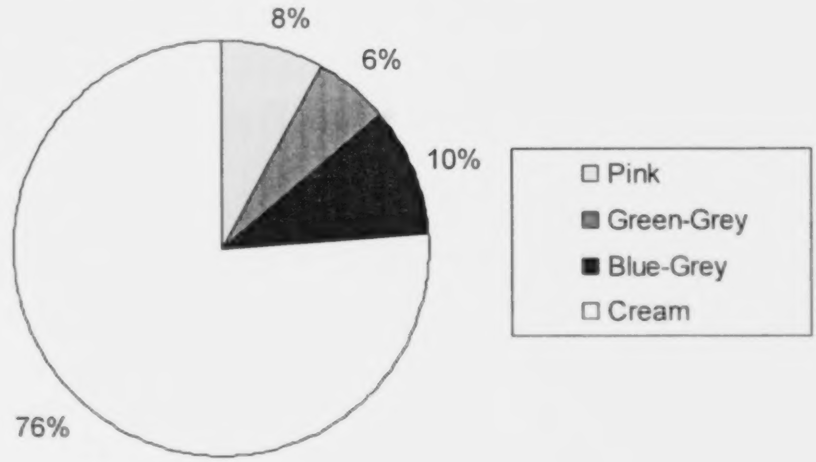
Sample # TW-034A-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



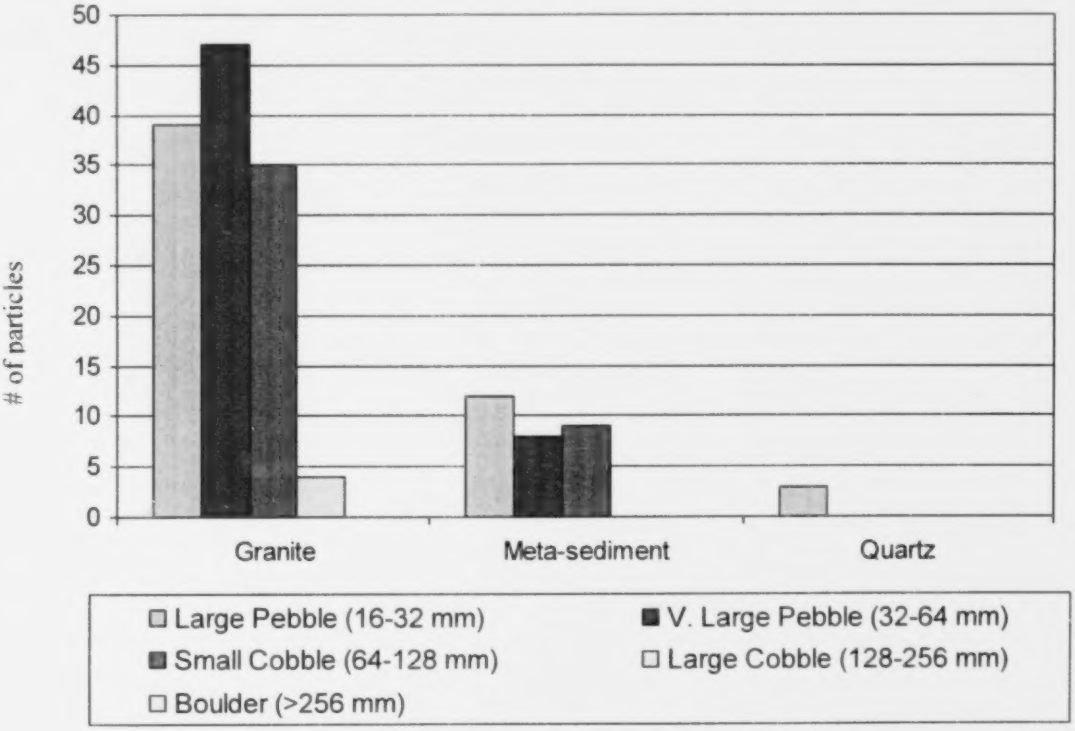
Rock Type:

Number of Different Textural Types

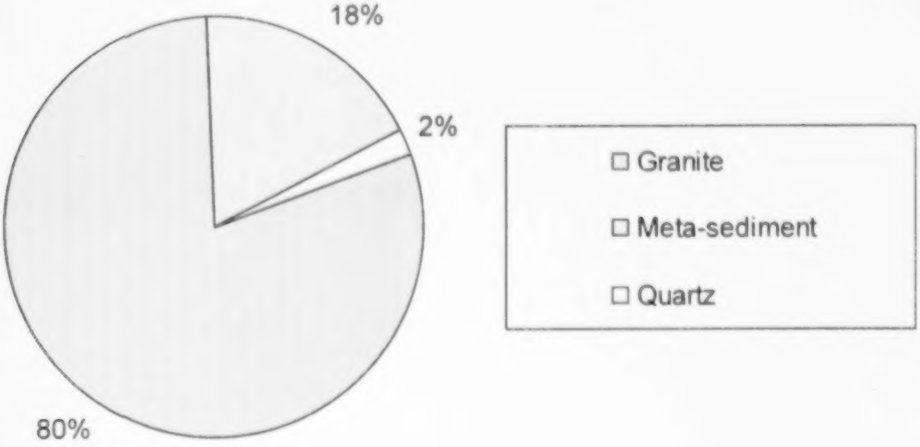
Sample # TW-034A-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

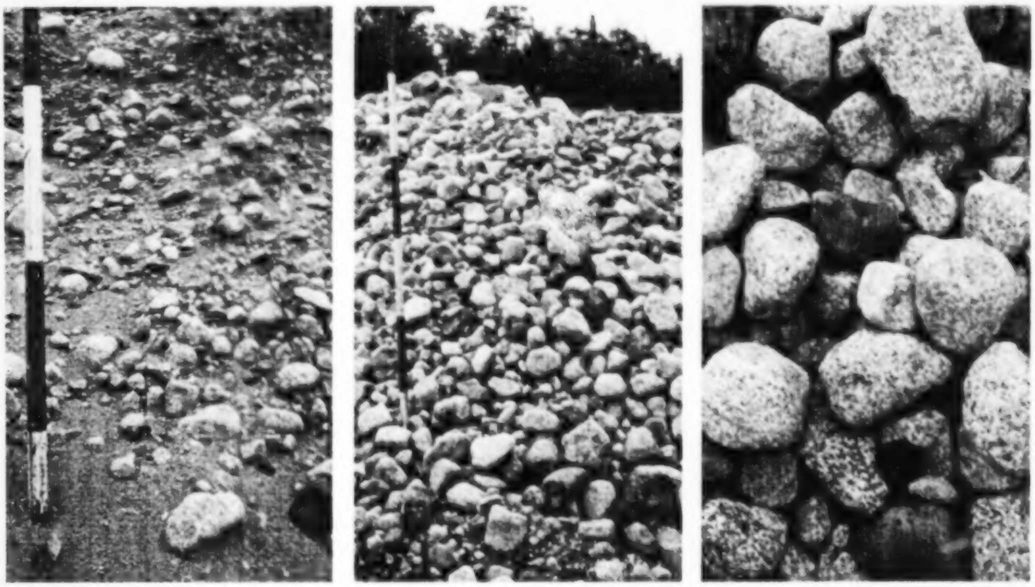
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-034A-01



Typical pit face and related stock pile of well rounded granite pebble and small cobble, east of McAdam, York County, southwestern New Brunswick.

☐

Comments: This active pit site appears to offer excellent potential for rounded to well rounded, rod shaped to discoidal, large and very large pebbles and small cobbles of cream to pink colored granite. The resource is however limited to a narrow esker adjacent White Beaver Brook and although a significant undeveloped resource extends to the north, it is transected by an active rail line. Gravel-sized material in existing pits has been extensively utilized as construction aggregate in 2002 but several old stock piles of coarse material at various locations about the site have potential to be reclaimed as a substantial source of attractive decorative material. This site appears to have a moderate to high development potential (72%) for rounded, large granite pebble to small cobble but the size of the resource appears limited (see Appendix D).

Primary screening separating large cobble and boulders

Basic large to very large pebble to cobble and small boulder recovery operation

Secondary screening separating gravel and finer fraction from medium to very large pebble and small cobble

Typical rounded, large to very large pebble and small cobble end product

Comments: This active pit site appears to offer excellent potential for rounded to well rounded, rod shaped to discoidal, large and very large pebbles and small cobbles of cream to pink colored granite. The resource is however limited to a narrow esker adjacent White Beaver Brook and although a significant undeveloped resource extends to the north, it is transected by an active rail line. Gravel-sized material in existing pits has been extensively utilized as construction aggregate in 2002 but several old stock piles of coarse material at various locations about the site have potential to be reclaimed as a substantial source of attractive decorative material. This site appears to have a moderate to high development potential (72%) for rounded, large granite pebble to small cobble but the size of the resource appears limited (see Appendix D).

Basic large to very large pebble to cobble and small boulder recovery operation

Primary screening separating large cobble and boulders

Secondary screening separating gravel and finer fraction from medium to very large pebble and small cobble

Typical rounded large to very large pebble and small cobble end product

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: White Beaver Brook (south) - McAdam

Sample #: TW-035-01 **Year:** 2001

Location: NTS: 21 G/11 County: York

Latitude: 45° 34.497" Longitude: 67° 15.562"

Zone: 19 UTM Northing: 5048000 UTM Easting: 6136000

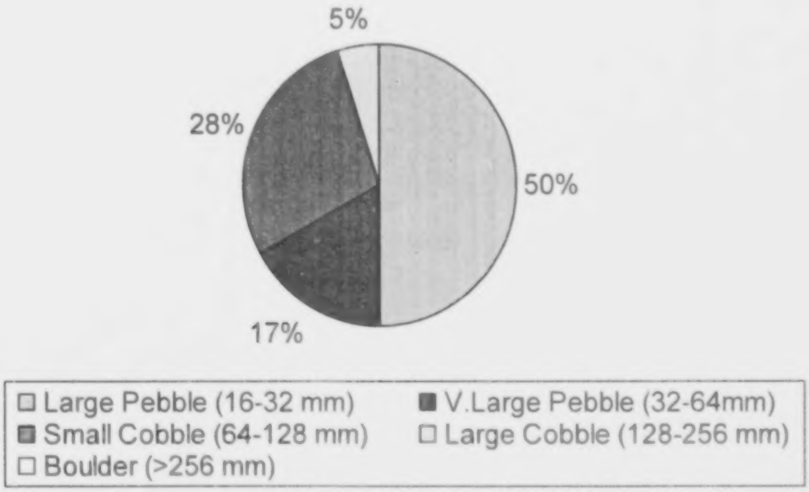
Description: A narrow (<100-200 m wide) ridge comprised of several small to large (>2 ha) inactive pits, adjacent White Beaver Brook, 3 to 4 km south of Hwy # 4 and 1.5 km south of an abandoned airstrip. Area referred to as "The Horseback"

Particle Size Classification:

Pit–run Material

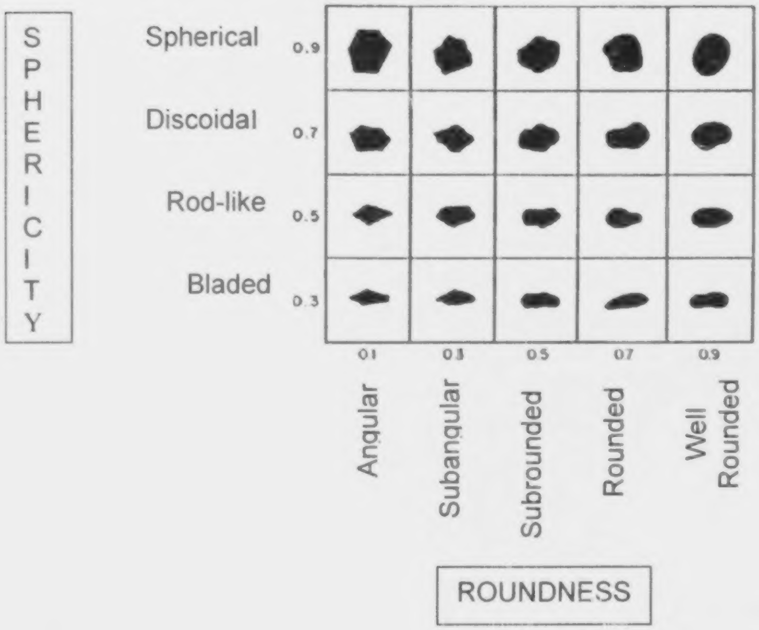
41 % clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material



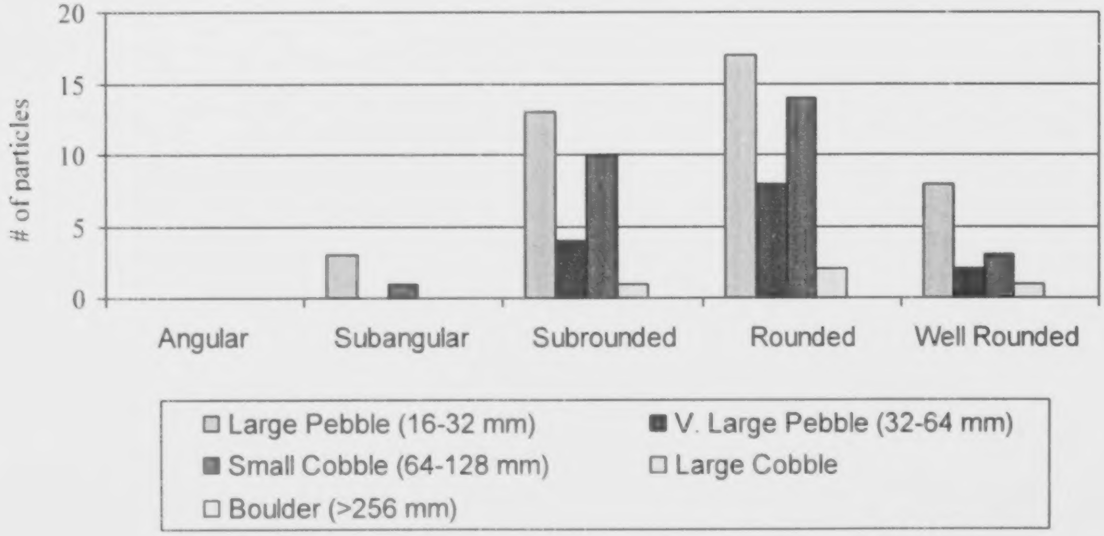
Roundness and Sphericity:

Standard



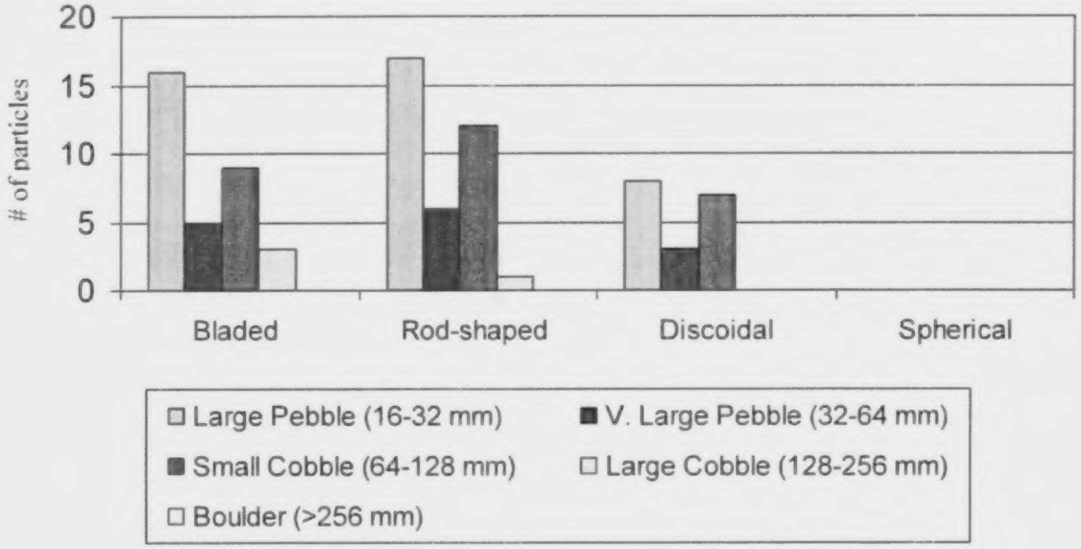
Roundness vs Particle Class Size

Sample #: TW-035-01

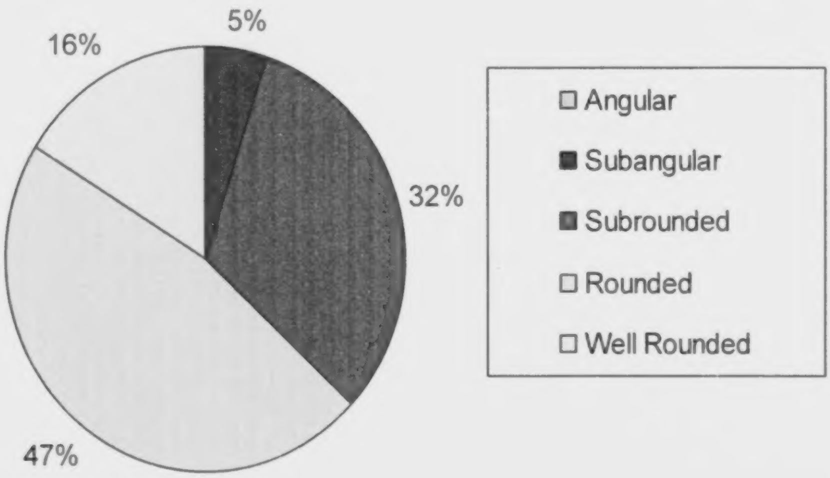


Sample # TW-035-01

Sphericity vs Particle Class Size

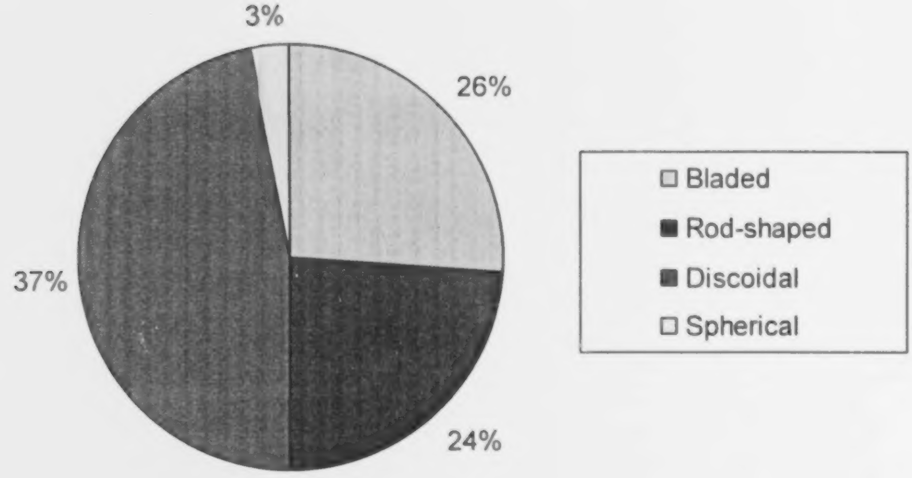


Average Roundness



Average = 0.47 (Rounded)
Standard deviation = 0.150

Average Sphericity



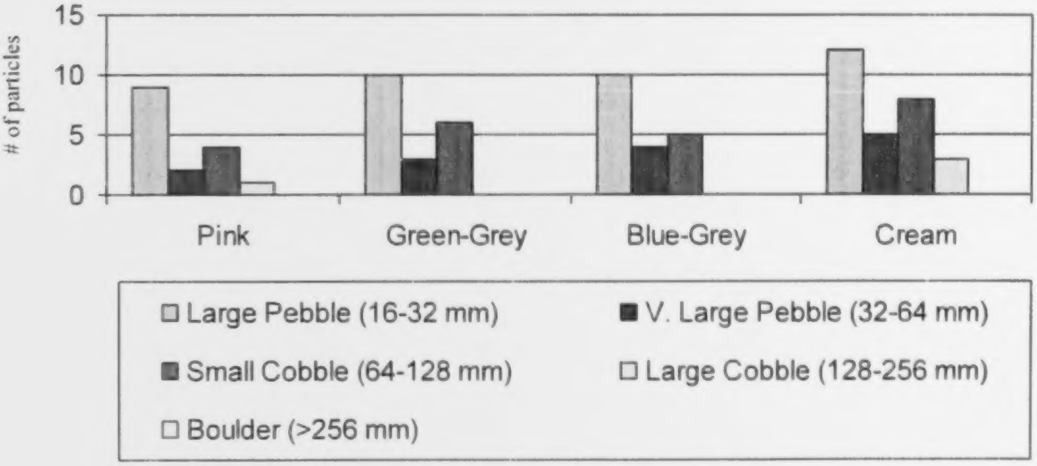
Average = 0.65 (Discoidal)
Standard deviation = 0.156

Color:

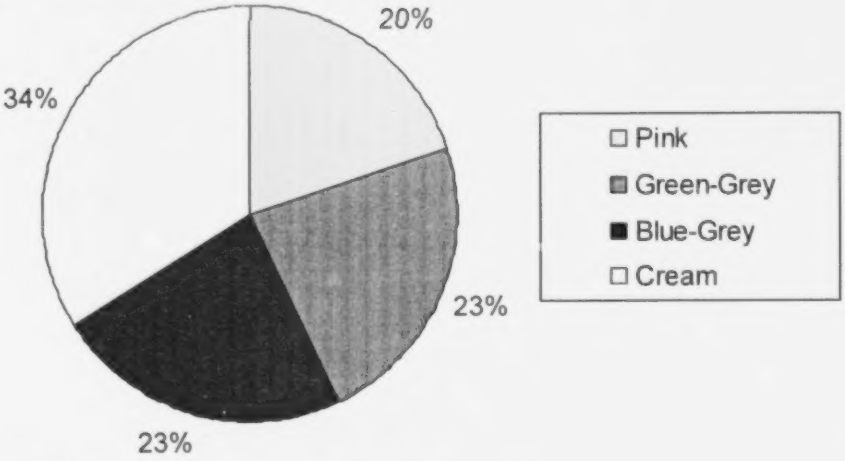
Sample # TW-035-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



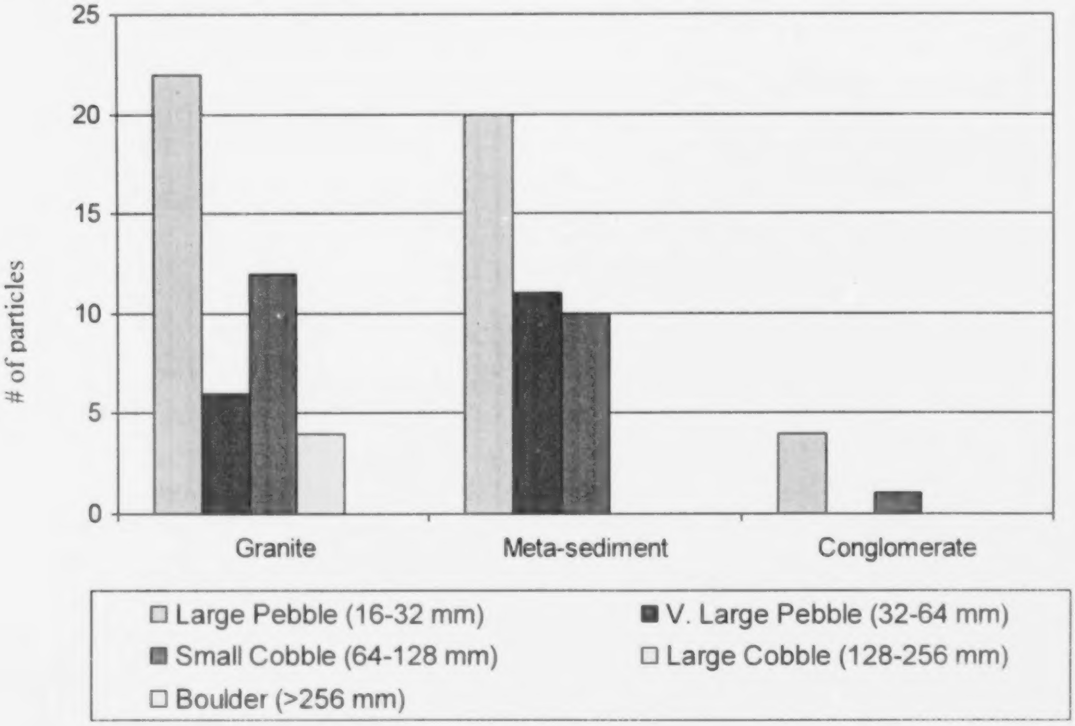
Rock Type:

Number of Different Textural Types:

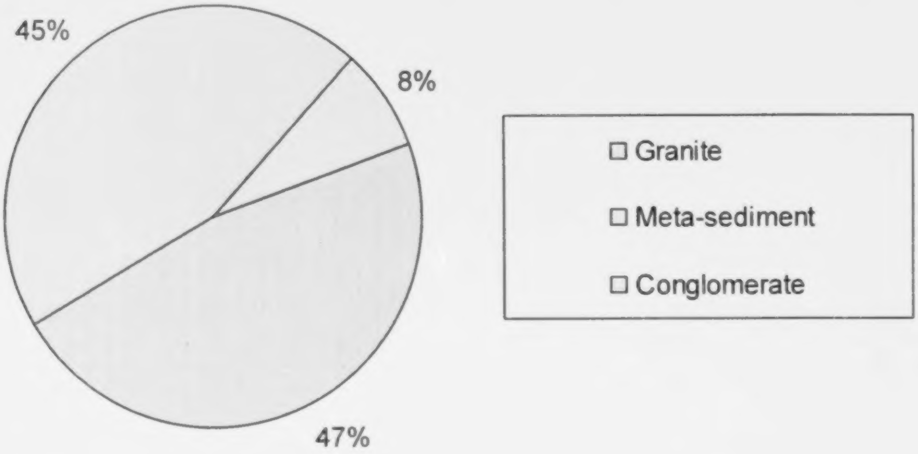
Sample # TW-035-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-035-01

Typical pit face and associated granite dominated scree pile, near McAdam, York County, southwestern New Brunswick.

Comments: Sample was taken from an inactive pit where pit run material consisted of 60% + coarse material favored for decorative pebble and cobble. There appears to be a very significant small cobble population here. Most of the resource in the excavated area appears near depletion, however a significant undeveloped resource area is shown to extend several hundred meters to the south. The material is generally rounded, discoidal in shape and similar to that found at site 034A to the north. It is dominated by pink and cream colored granite with lesser amounts of blue-grey meta-sedimentary rock. This area is rated as having a moderate (60%) development potential for decorative pebble and cobble (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Thomaston-Brockway (north)

Sample #: TW-036-01 **Year:** 2001

Location: NTS: 21 G/11 County: York

Latitude: 45° 38.105" Longitude: 67° 6.597"

Zone: 19 UTM Northing: 5055000 UTM Easting: 647300

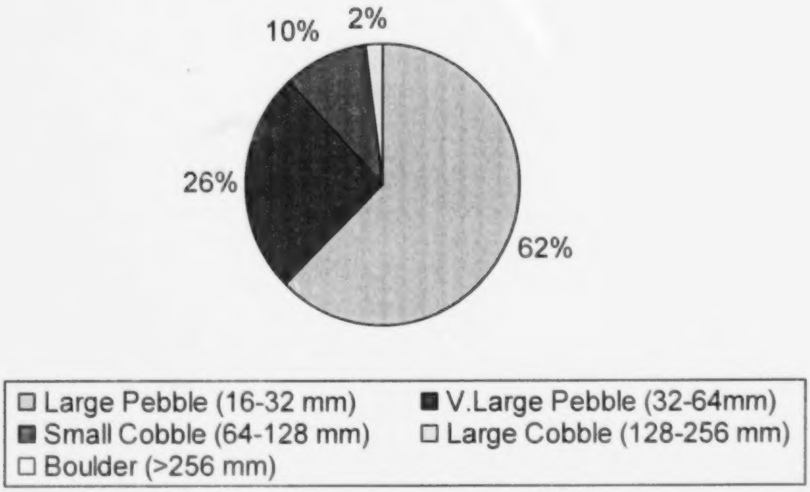
Description: Northernmost (active) of several large connected pits extending over several hectares, adjacent Hwy # 3, 2 to 3 km south of Thomaston Corner.

Particle Size Classification:

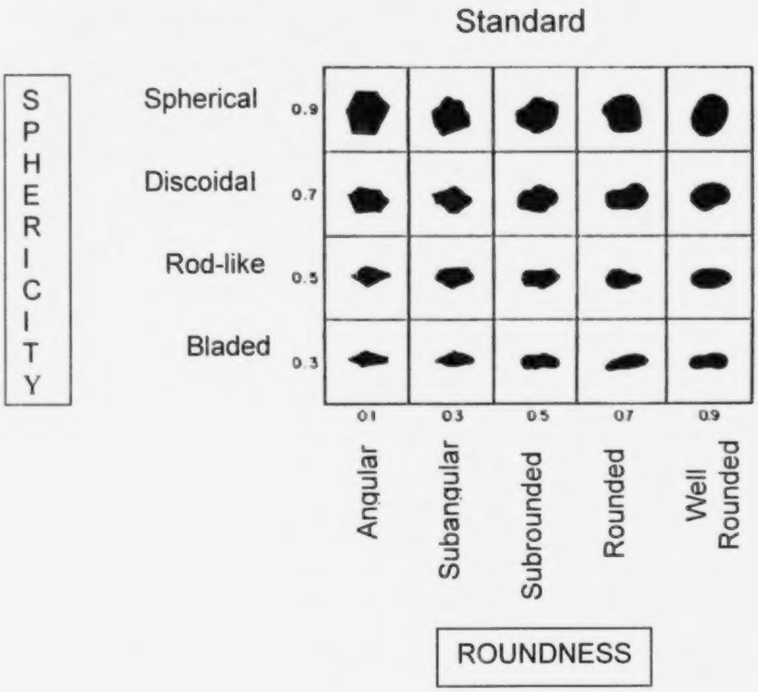
Pit–run Material

33% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**67 %** medium pebble, cobble and boulders (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

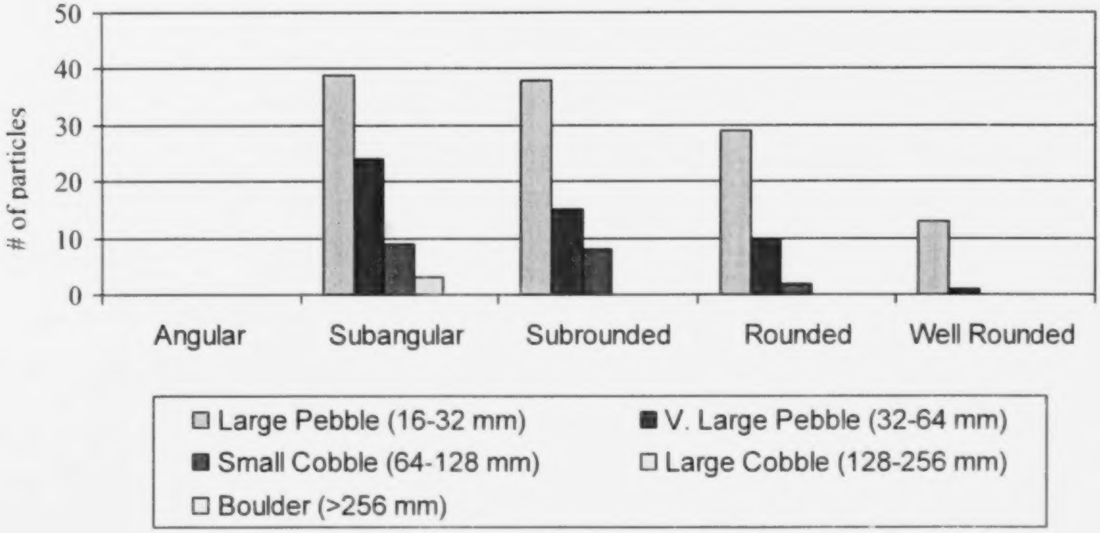


Roundness and Sphericity:



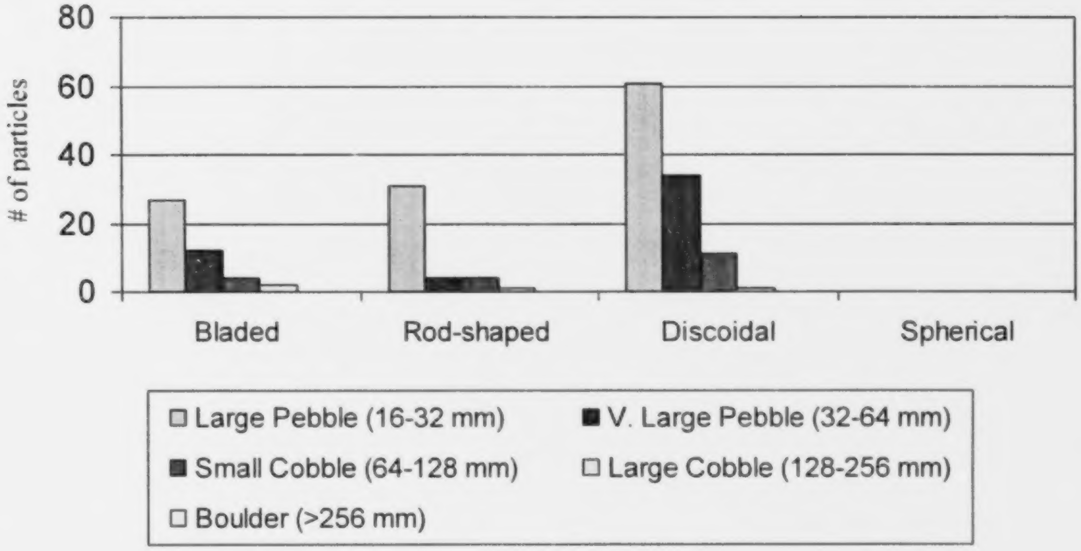
Roundness vs Particle Class Size

Sample #: TW-036-01

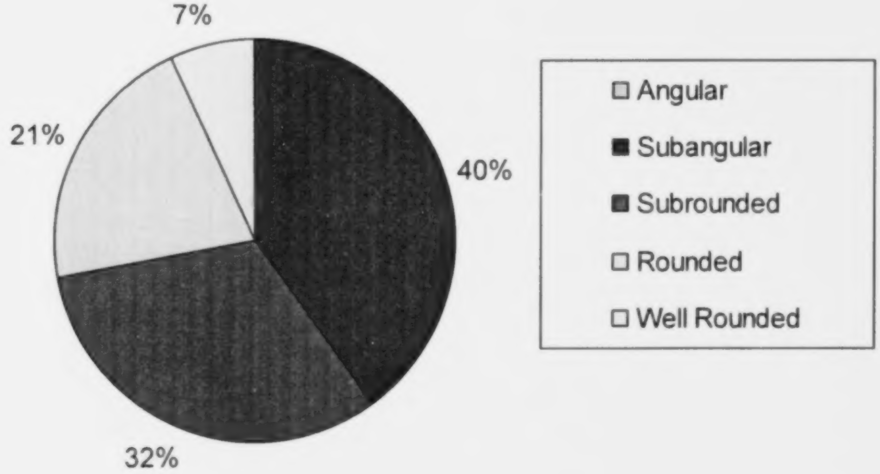


Sample # TW-036-01

Sphericity vs Particle Class Size

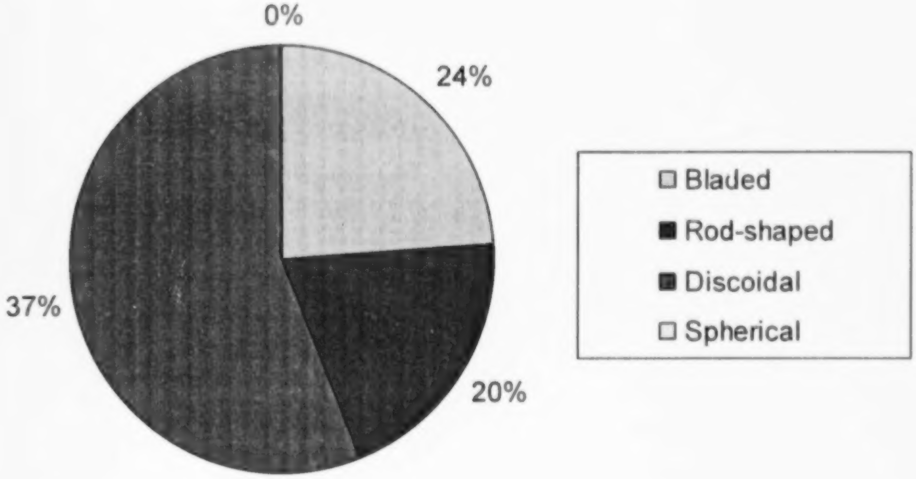


Average Roundness



Average = 0.49 (Subrounded to Rounded)
Standard deviation = 0.190

Average Sphericity



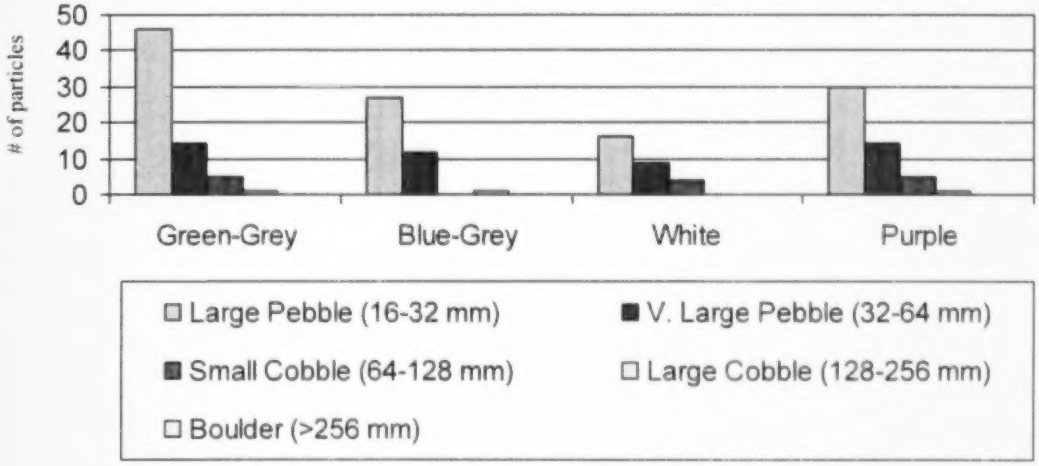
Average = 0.56 (Discoidal)
Standard deviation = 0.167

Color:

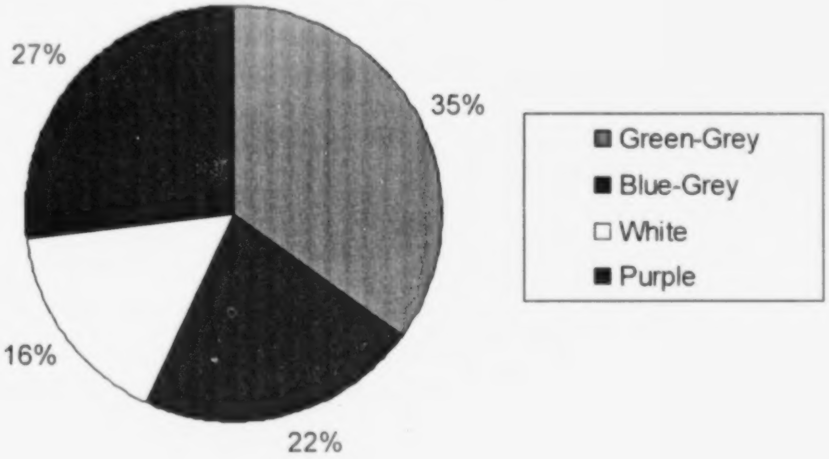
Sample # TW-036-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



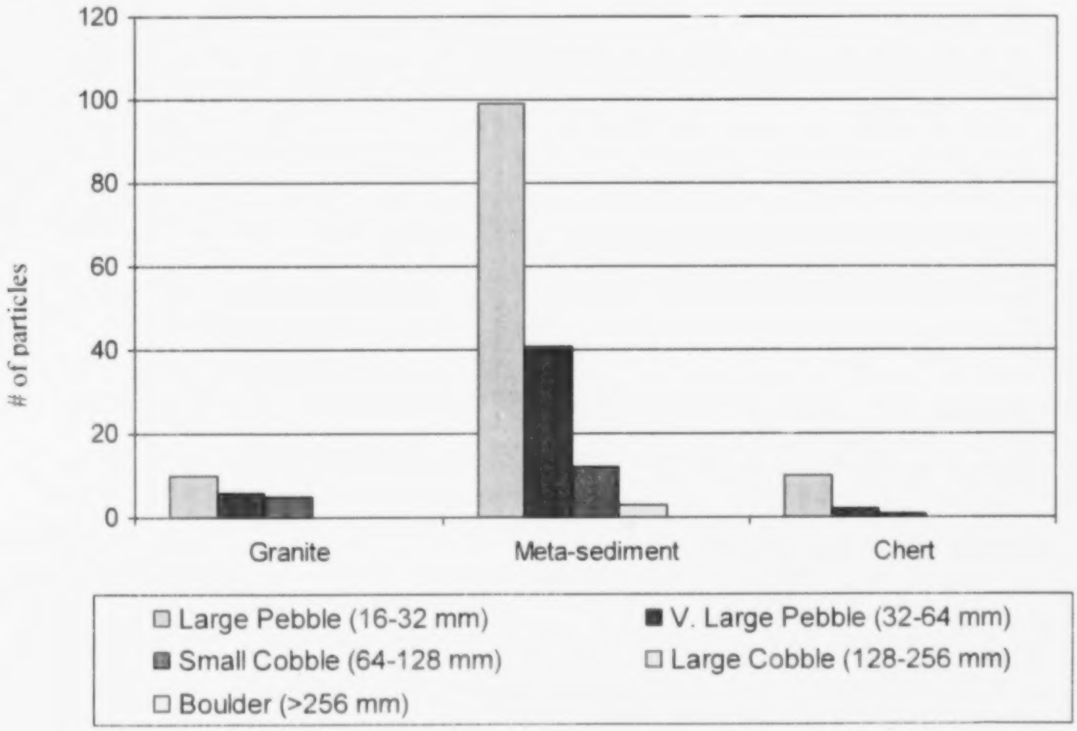
Rock Type:

Number of Different Textural Types

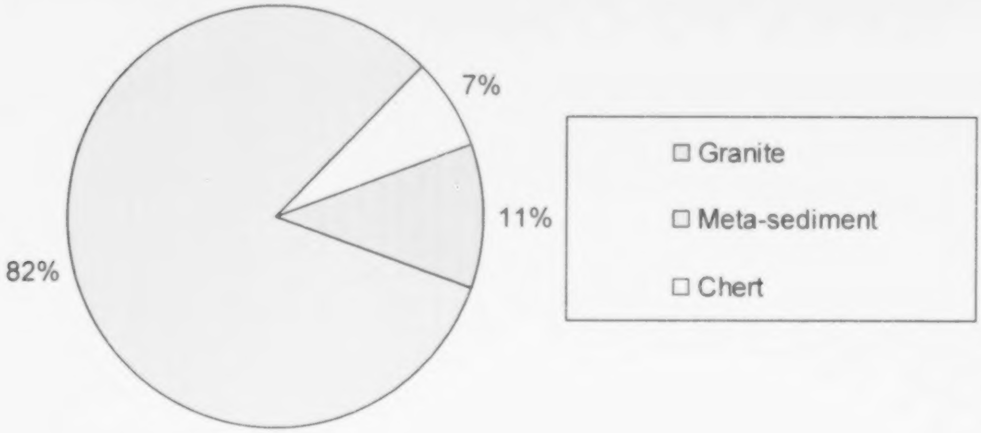
Sample # TW-036-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

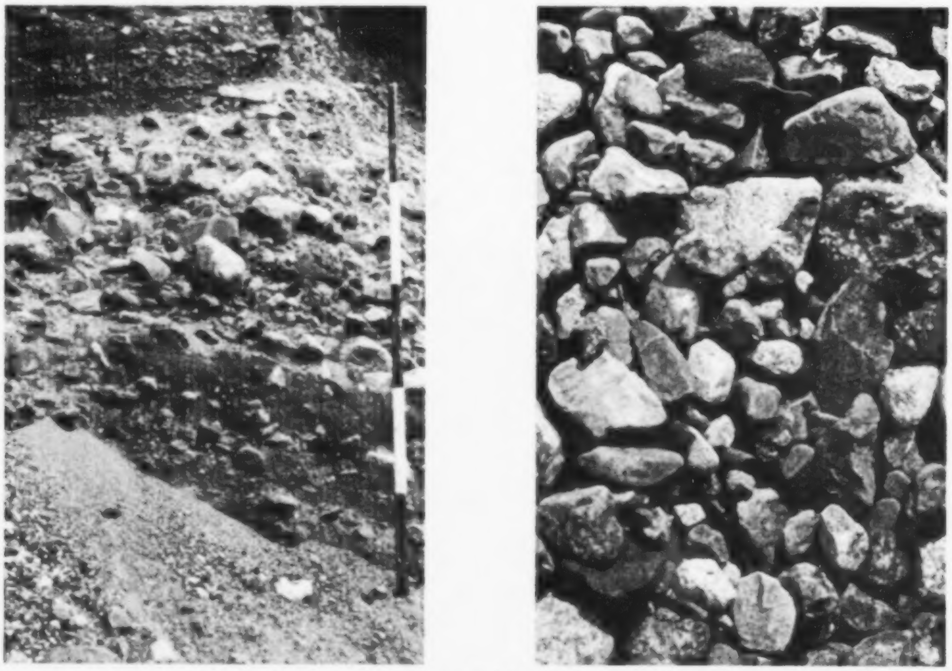
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-036-01



Insitu pit face material consisting of large to very large subrounded pebbles of metasedimentary rock with minor light colored granite, near Upper Brockway, southern part of York County, southwestern New Brunswick.

Comments: Almost 70% of pit run sample from this active pit was medium pebble or larger with large pebble and very large pebble comprising a significant portion of the coarse fraction. Particles are subrounded to rounded and generally discoidal in shape. Four main colors occur with green-blue and purple most notable. Meta-sedimentary rocks comprise a major portion of the lithotypes.

This site has a large stock pile of coarse material with significant potential for additional material. It appears to have moderate (63%) development potential as a source of decorative pebble and cobble (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Thomaston-Brockway (central)

Sample #: TW-037-01 **Year:** 2001

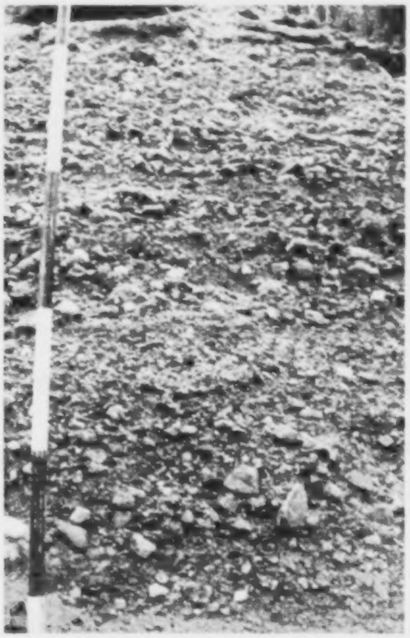
Location: NTS: 21 G/11 County: York

Latitude: 45° 38.105" Longitude: 67° 6.597"

Zone: 19 UTM Northing: 5055000 UTM Easting: 647300

Description: Central part (active) of several large connected pits extending over several hectares, adjacent Hwy # 3, 2 to 3 km south of Thomaston Corner.

Sample # TW-037-01



Pit face section of medium to large pebble of meta-sedimentary and associated intrusive rocks, near Upper Brockway, southern part of York County, southwestern New Brunswick.

Comments: Site not sampled. Material appears similar to that of site TW-036-01, although may be finer (i.e. more medium to large pebble). Rated at slightly below moderate potential (50%) for decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Thomaston-Brockway (south)

Sample #: TW-038-01 **Year:** 2001

Location: NTS: 21 G/11 County: York

Latitude: 45° 37.085" Longitude: 67° 5.813"

Zone: 19 UTM Northing: 5054550 UTM Easting: 647600

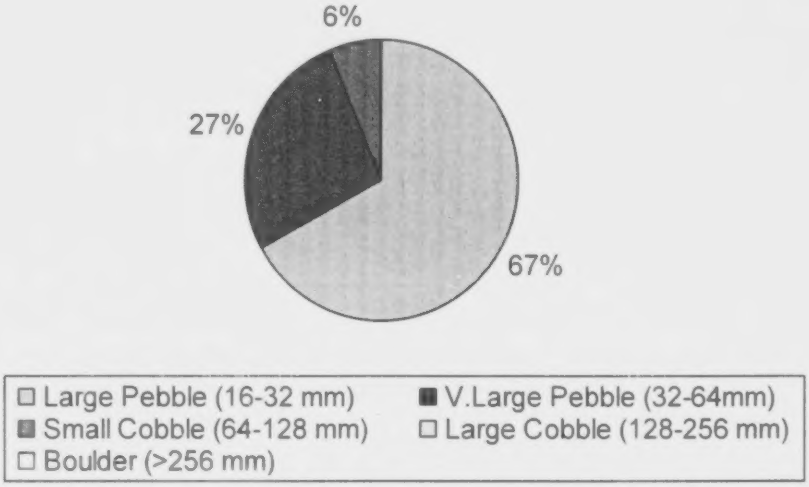
Description: Southernmost (inactive) of several large connected pits extending over several hectares, adjacent Hwy # 3. 2 to 3 km south of Thomaston Corner.

Particle Size Classification:

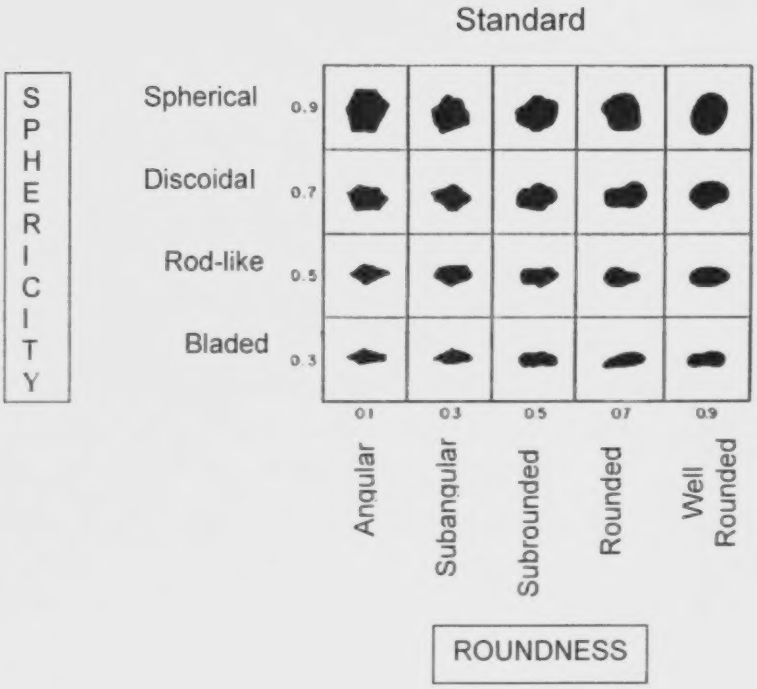
Pit–run Material

52% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**48 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

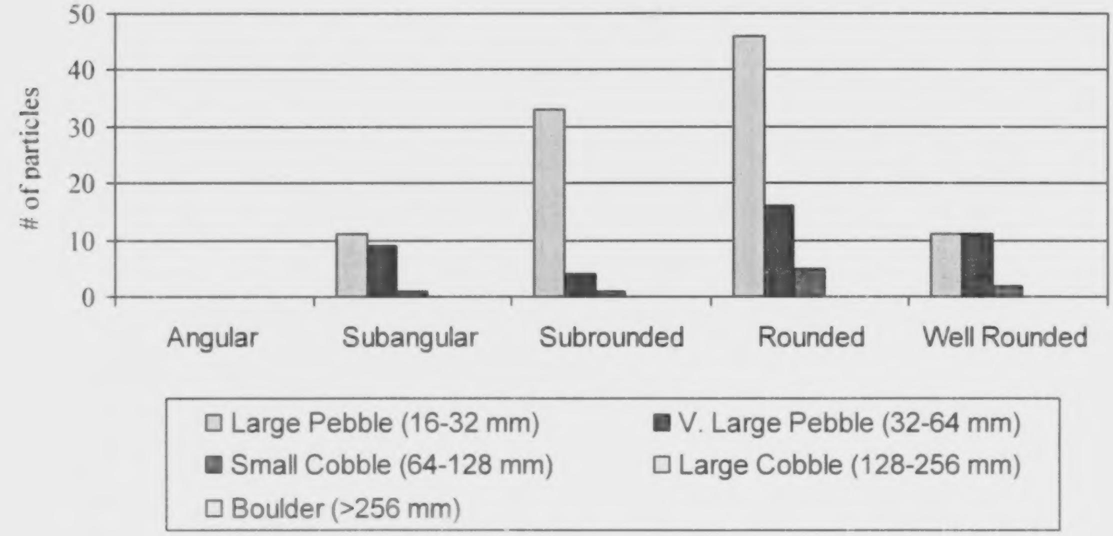


Roundness and Sphericity:



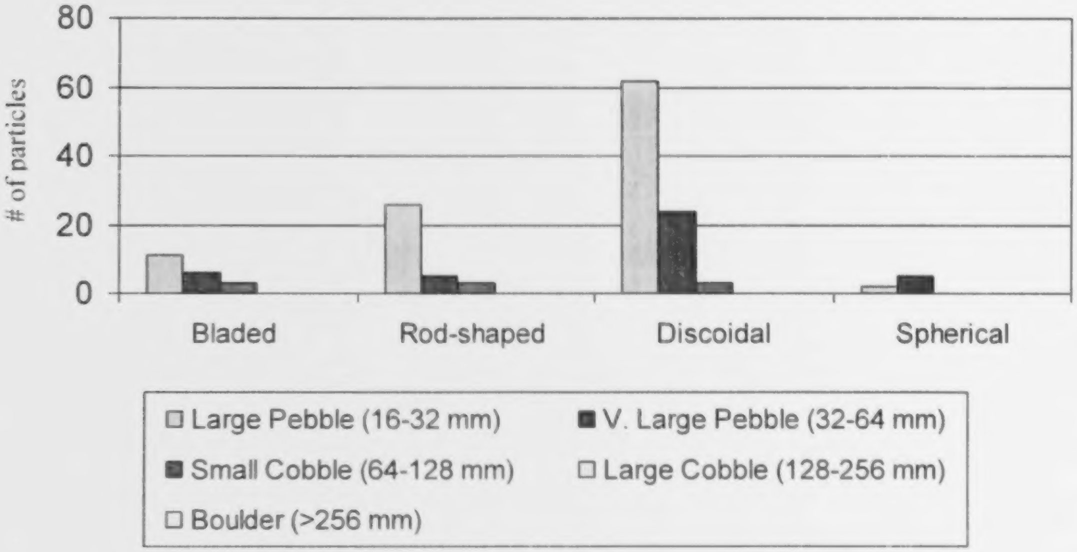
Roundness vs Particle Class Size

Sample #: TW-038-01

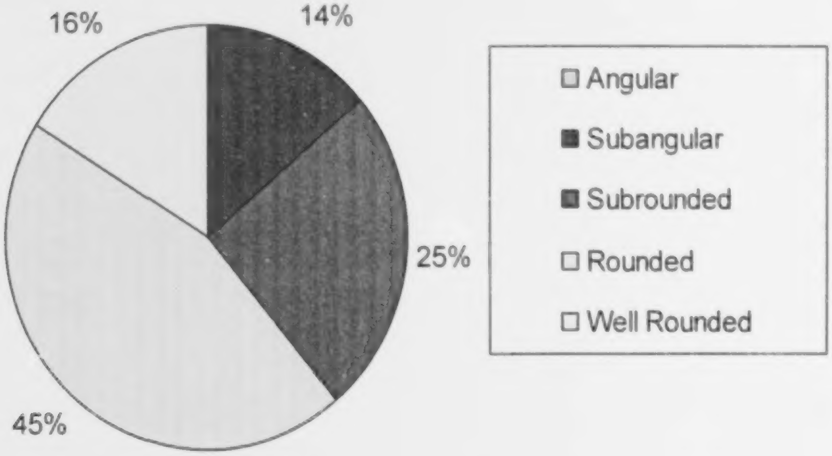


Sample # TW-038-01

Sphericity vs Particle Class Size

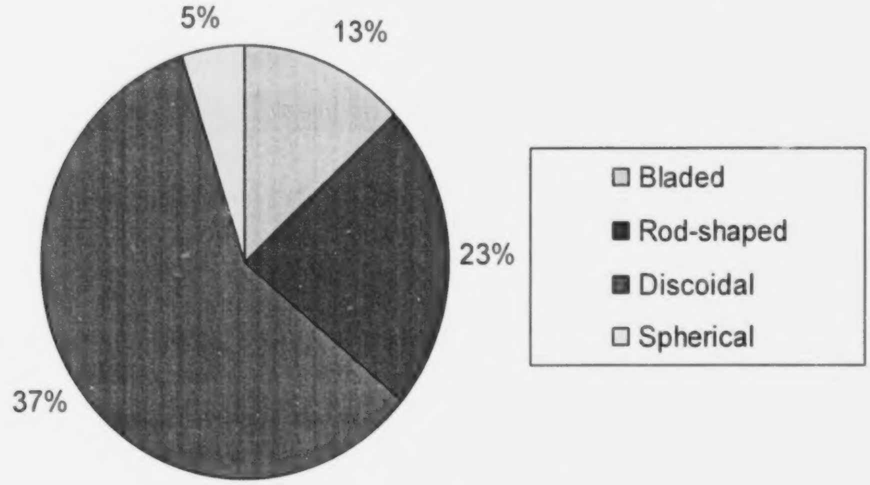


Average Roundness



Average = 0.63 (Rounded)
Standard deviation = 0.183

Average Sphericity



Average = 0.61 (Discoidal)
Standard deviation = 0.156

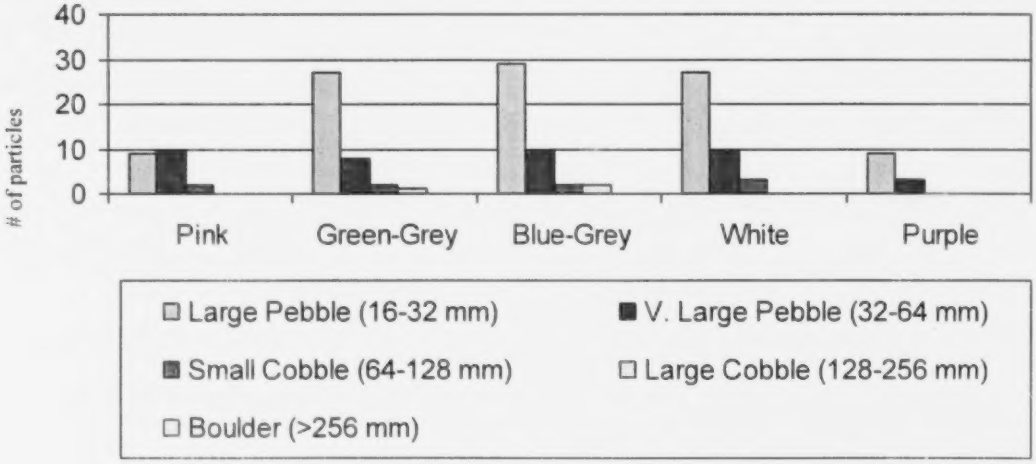
Color:

Sample # TW-038-01

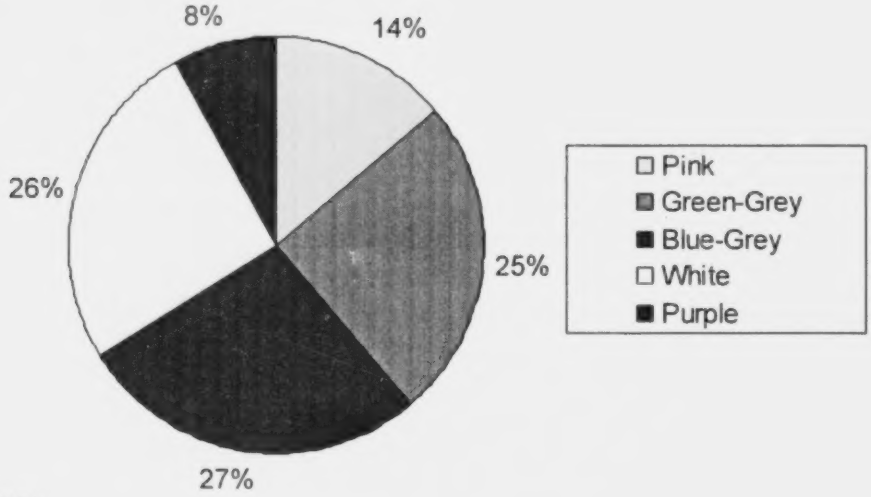
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



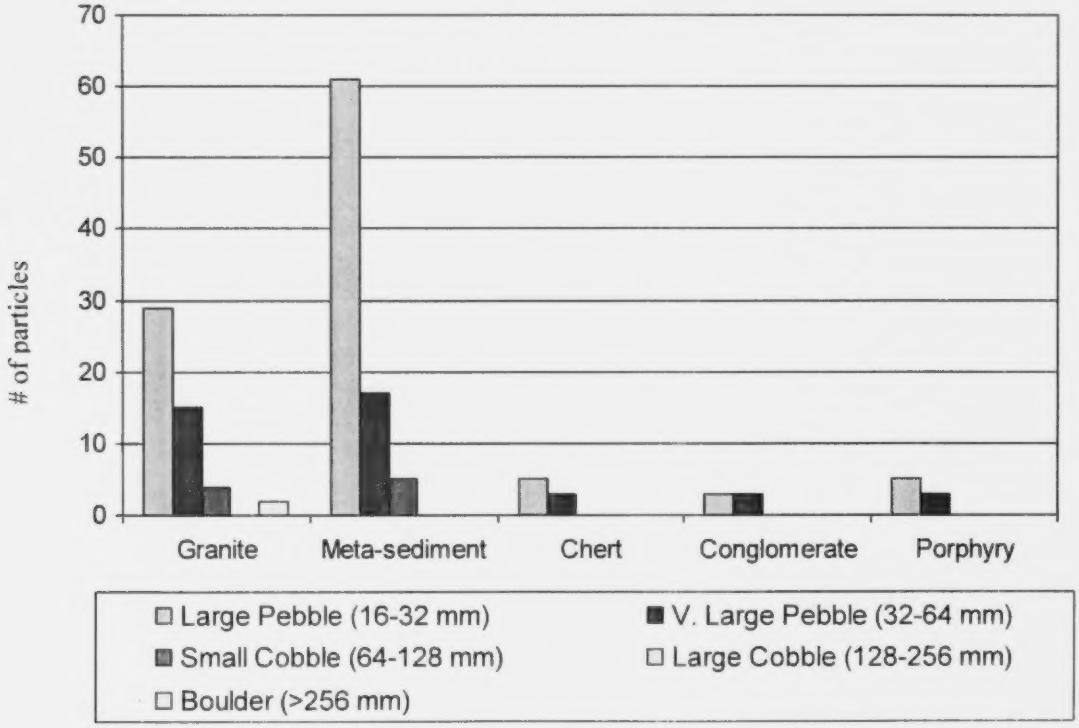
Rock Type:

Number of Different Textural Types

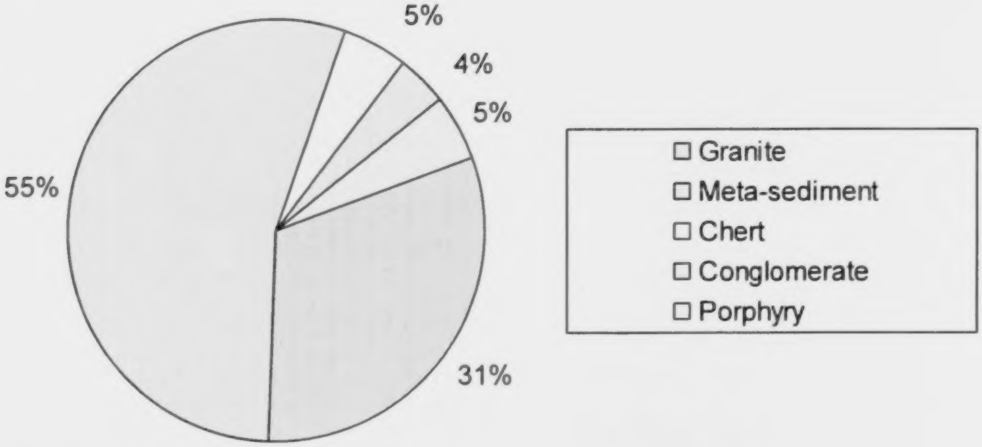
Sample # TW-038-01

Limited (<2)	Several (2-4)	Many (>4)
X		

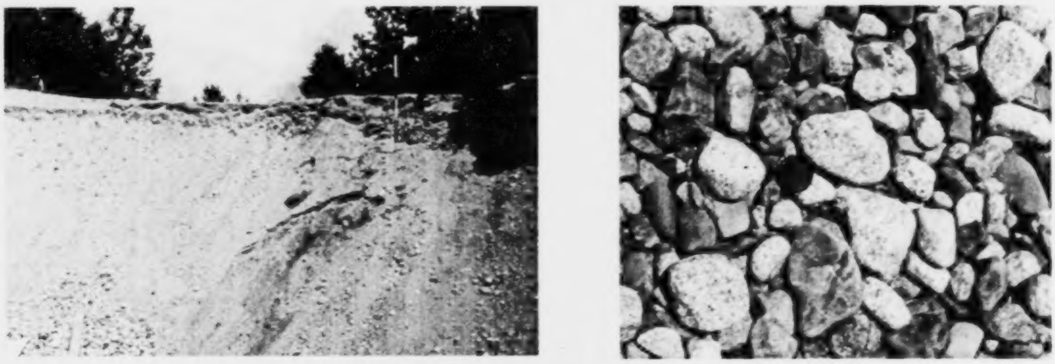
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-038-01



Insitu pit face of material dominated by fine fraction with scree pile of large to very large granite and meta-sedimentary rock pebble, southern part of York County, southwestern New Brunswick.

Comments: Generally smaller particle sizes at this inactive pit location. Sample of pit run material yielded 50%+ clay, sand and small pebbles. Coarser particle sizes indicate a significant large pebble population. Most particles are rounded to subrounded and discoidal in shape. Many different colors are represented here with almost equal distribution of white, green-grey and blue-grey. Meta-sedimentary rocks and granite are among the most abundant lithotypes. This site appears to have limited potential for small cobble. Overall rating for large pebble is moderate to high development potential (68%) (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Basswood Ridge

Sample: #: TW-039-01 **Year:** 2001

Location: NTS: 21 G/06 County: Charlotte

Latitude: 45° 17.946" Longitude: 67° 20.615"

Zone: 19 UTM Northing: 5017500 UTM Easting: 630000

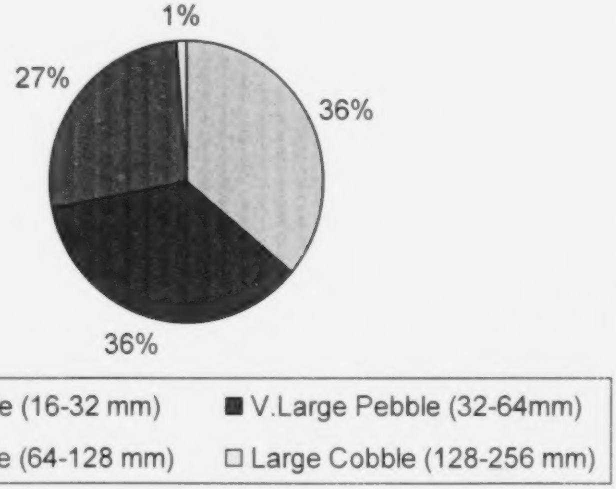
Description: Very large (> 3 ha) inactive (entrance barrier) pit adjacent Hwy # 740, about 1.5 km south of Basswood Ridge.

Particle Size Classification:

Pit–run Material

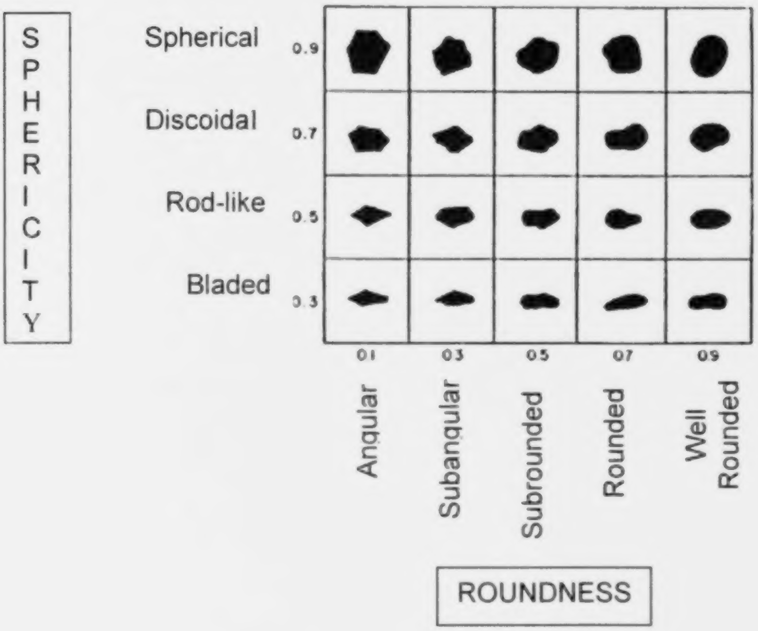
34% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**66 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material



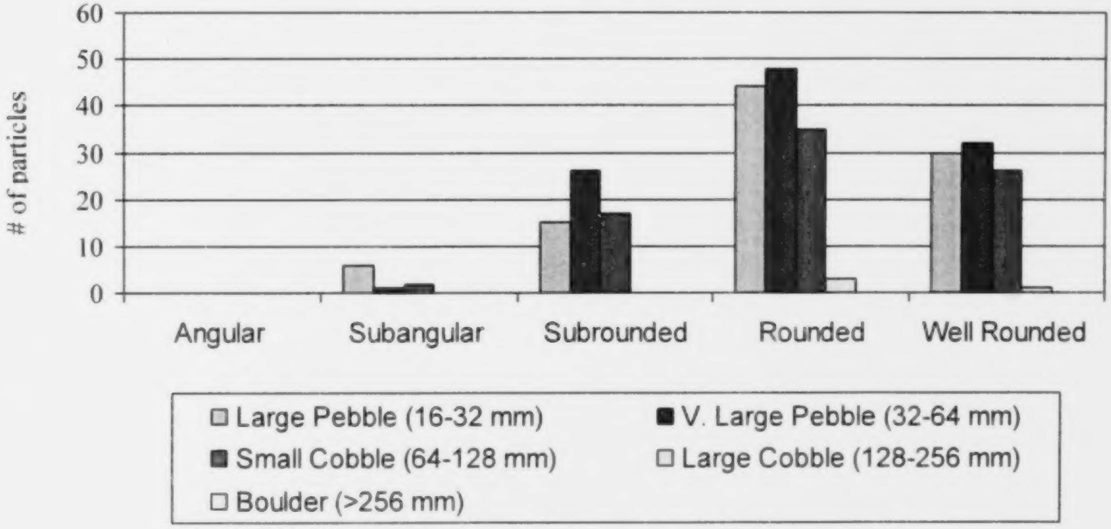
Roundness and Sphericity:

Standard



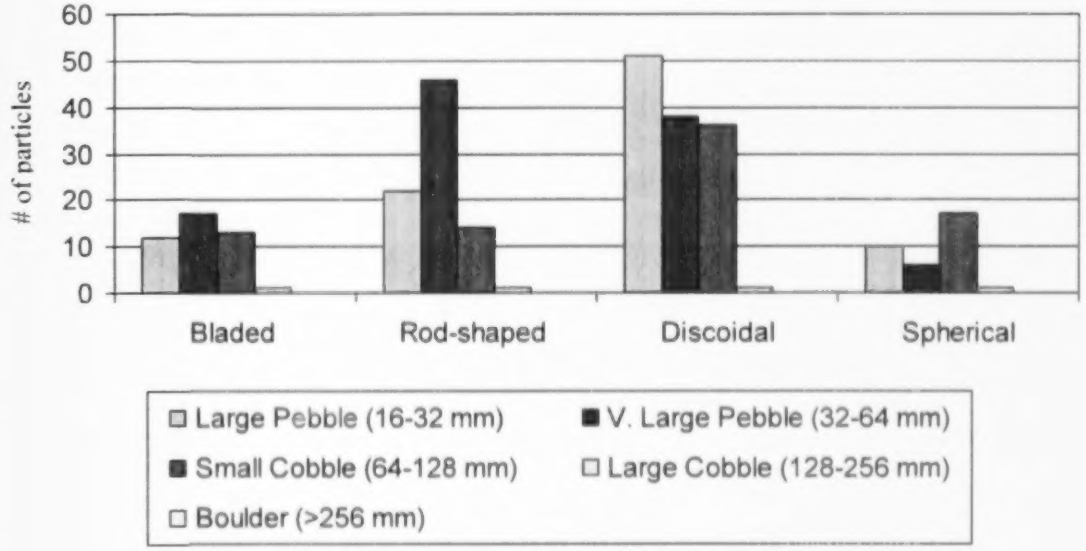
Roundness vs Particle Class Size

Sample # TW-039-01

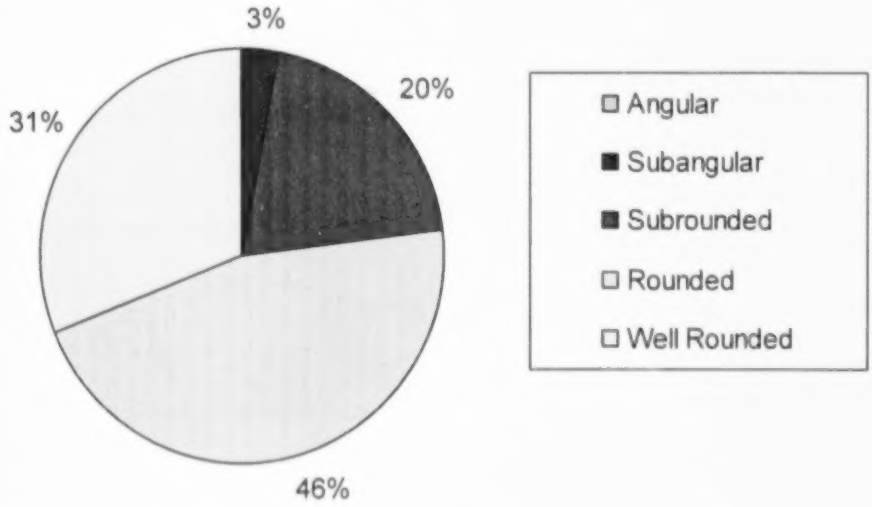


Sample # TW-039-01

Sphericity vs Particle Class Size

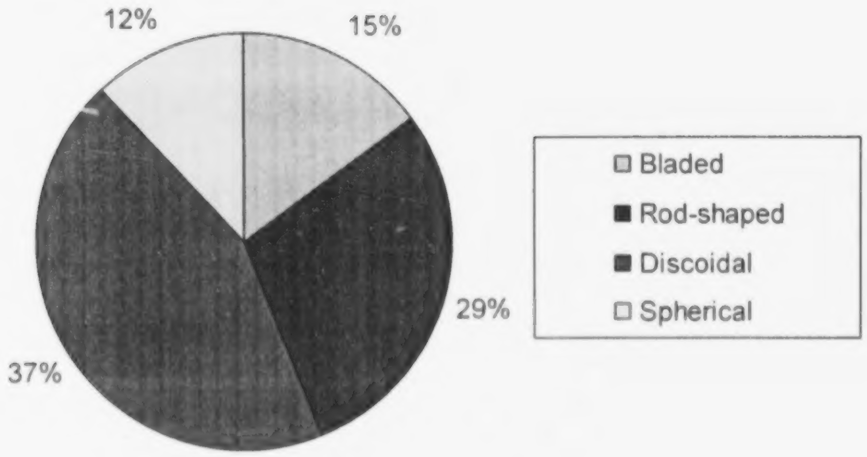


Average Roundness



Average = 0.71 (Rounded to Well Rounded)
Standard deviation = 0.160

Average Sphericity



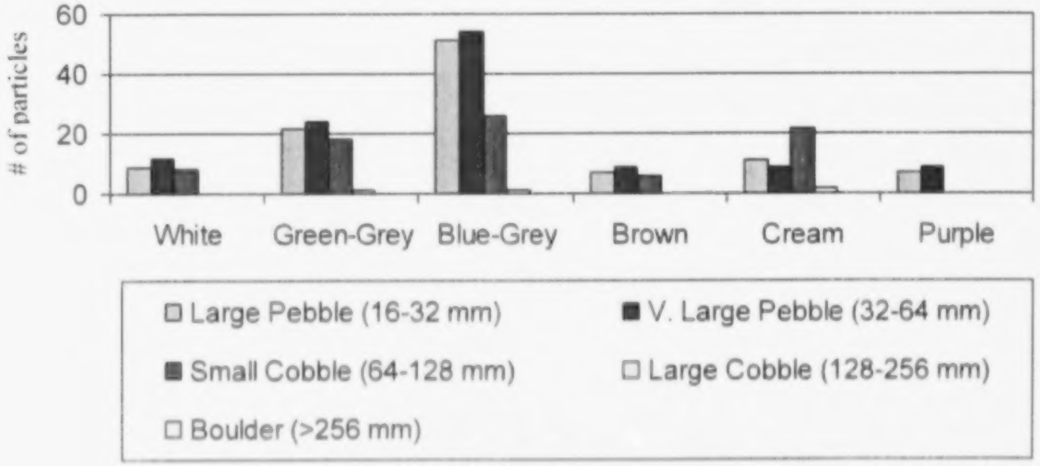
Average = 0.59 (Discoidal to Rod-shaped)
Standard deviation = 0.184

Color:

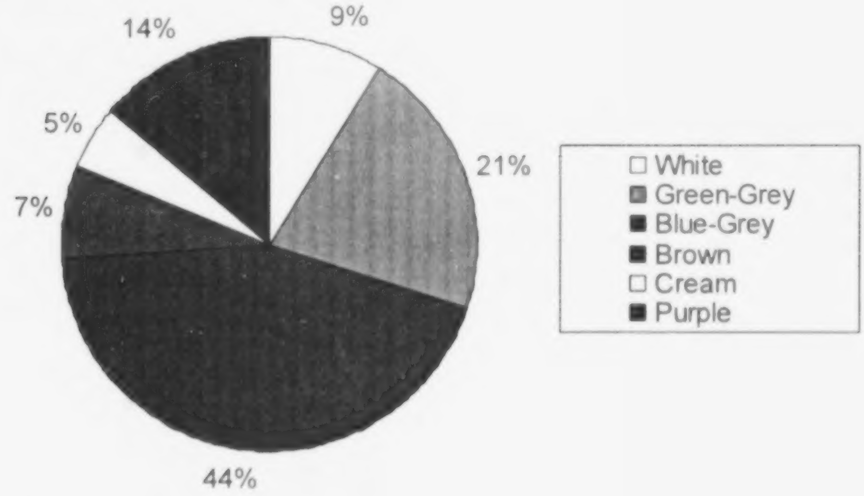
Sample # TW-039-01

Number of Different Colors	Limited (<2)	Several (2-4)	Many (>4)
			X

Color Classification vs Particle Class Size



Average Color Distribution



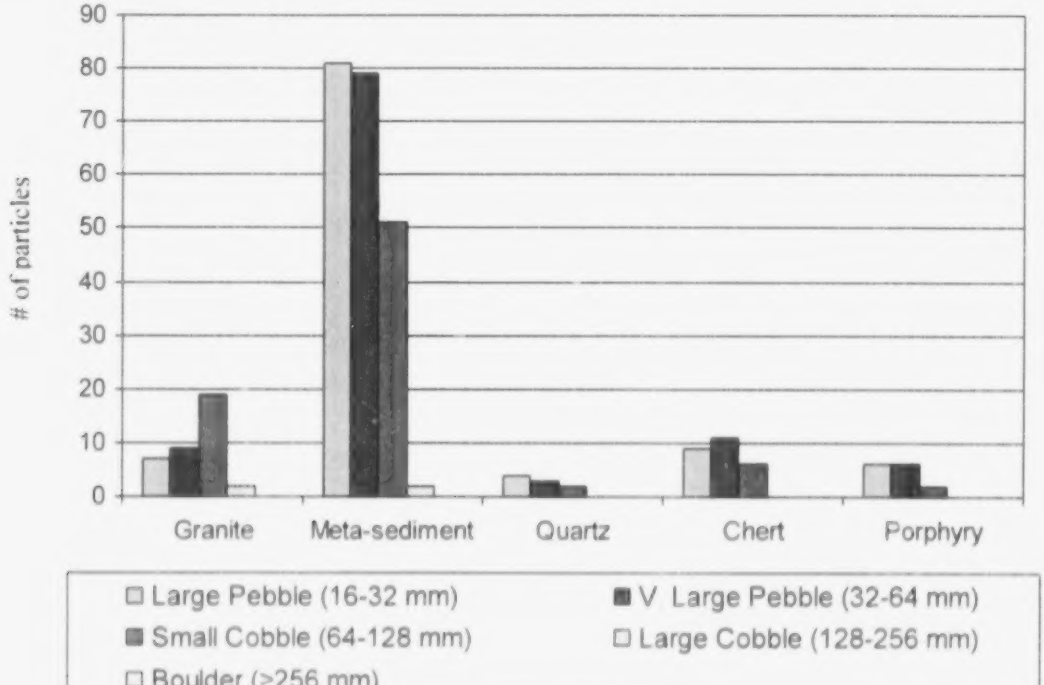
Rock Type:

Number of Different Textural Types

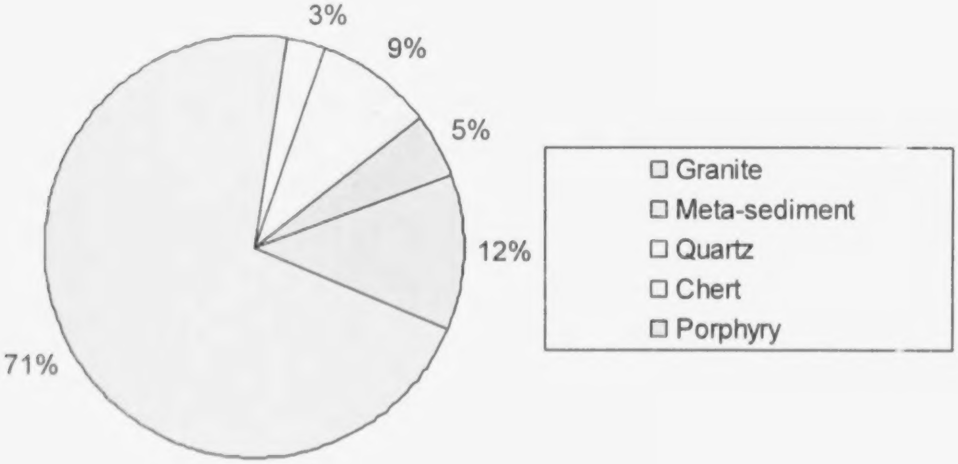
Sample # TW-039-01

Limited (<2)	Several (2-4)	Many (>4)
		X

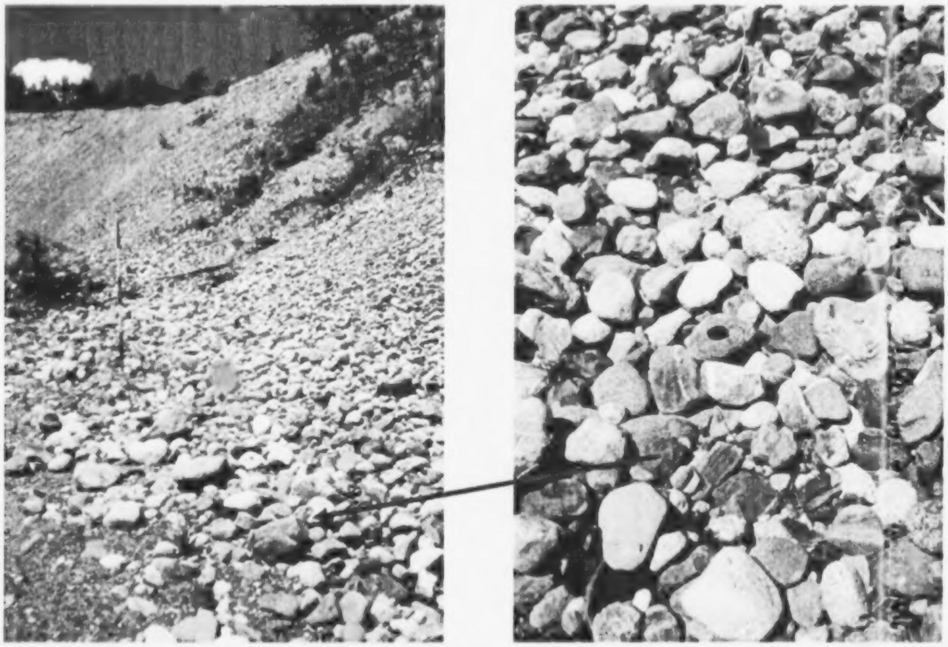
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-039-01



Grey-green to blue-grey, rounded to well rounded, discoidal to rod shaped large pebble to small cobble in scree pile from large inactive pit south of Basswood Ridge, western part of Charlotte County, southwestern New Brunswick

Comments: A large resource of large and very large pebble and small cobble. Particles are rounded to well rounded, discoidal to rod-shaped, displaying a wide range of contrasting colors with blue-green and green-blue among the most prominent. Many different lithotypes are represented here, however meta-sedimentary rocks and granite dominate. This site is considered to have a high to moderate (82%) development potential for decorative material displaying a wide range of sizes and colors (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: McQuirks Mountain

Sample #: TW-043-01 **Year:** 2001

Location: NTS: 21 G/02 County: Charlotte

Latitude: 45° 10.036" Longitude: 66° 50.996"

Zone: 19 UTM Northing: 5003650 UTM Easting: 668850

Description: This is the site of a former long time abandoned granite quarry. Situated on the east face of McQuirks Mountain, a few hundred meters west of Highway #770, 500 - 800 meters north of its intersection with the Canal Road.

Many thousands of tonnes of variously sized red to pink granite blocks remain left over from former quarry operations, several kilometers north of St. George, south-central part of Charlotte County, southwestern New Brunswick

Comment: Many tonnes of variously sized and shaped, red to pink, medium-grained, biotite granite (Utopia Granite) blocks; quarry grout from former quarry operations of Milne, Coutts & Co. of St. George, N.B,. circa

!880s-1940s (see Wright 1934. *Preliminary report of the granite industry of St. George, Charlotte County, N.B.* Unpublished report, New Brunswick Dept. of Lands and Mines, Mining Section, Fredericton, 30 p.). The former quarry was developed on two levels with significant waste stone accumulation at both. Stone removal from existing grout piles may present some technical challenges.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Hanwell

Sample #: TW-044-01 **Year:** 2001

Location: NTS: 21 G/15 County: York

Latitude: 45° 49.780" Longitude: 66° 50.285"

Zone: 19 UTM Northing: 5077500 UTM Easting: 667600

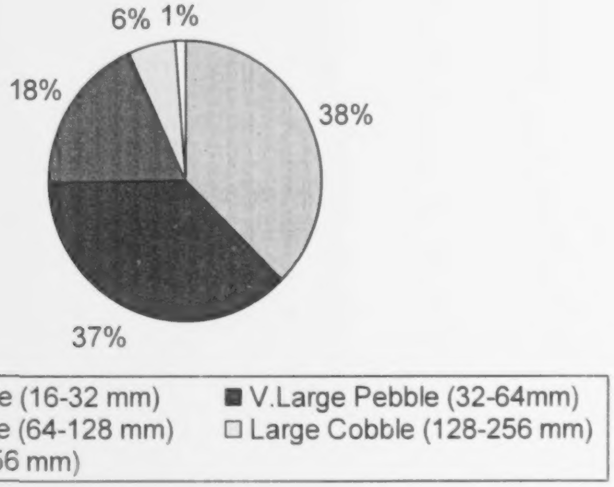
Description: Situated in a large (> 2 ha) active pit 0.5 km west of the Hanwell Road (Hwy # 640), about 6.5 km south of Hanwell Settlement

Particle Size Classification:

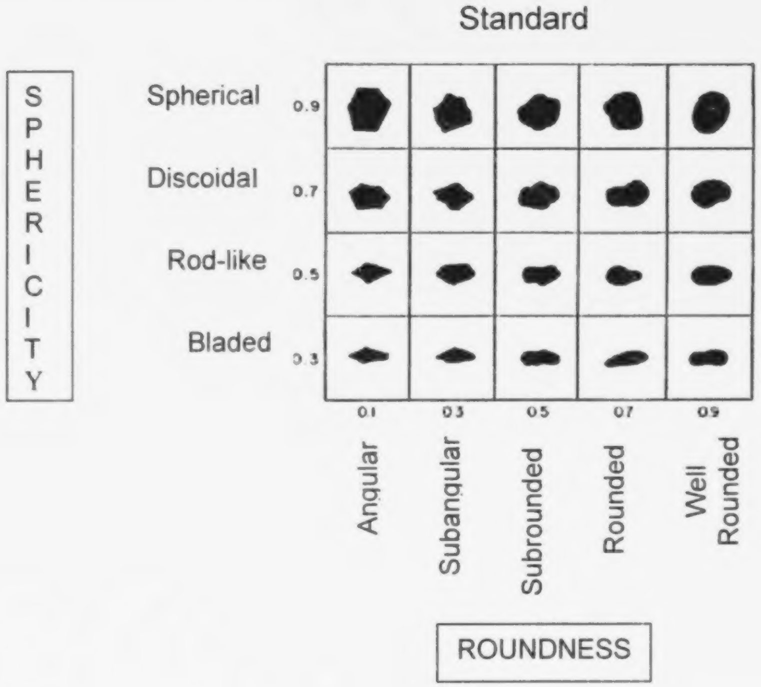
Pit–run Material

24% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**76 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material:

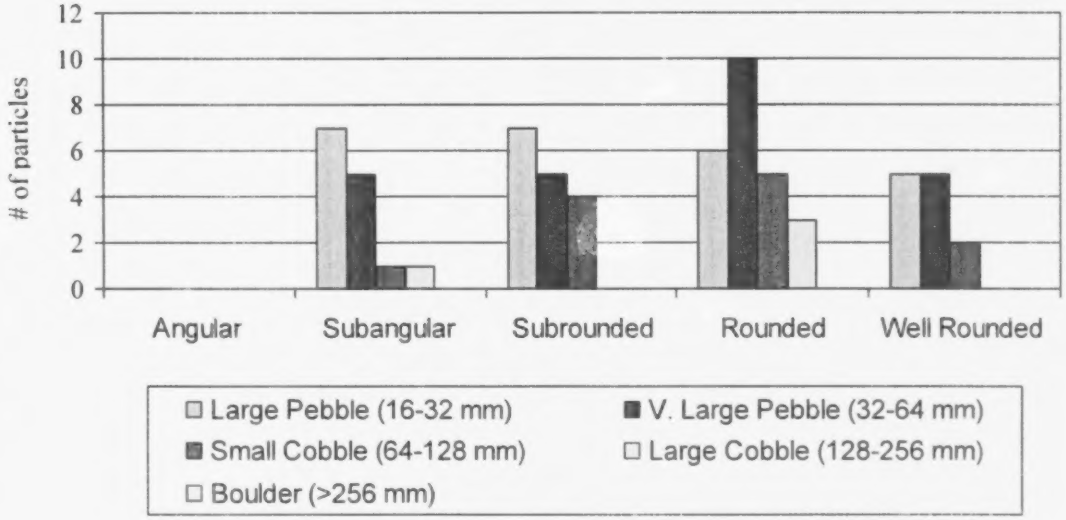


Roundness and Sphericity:



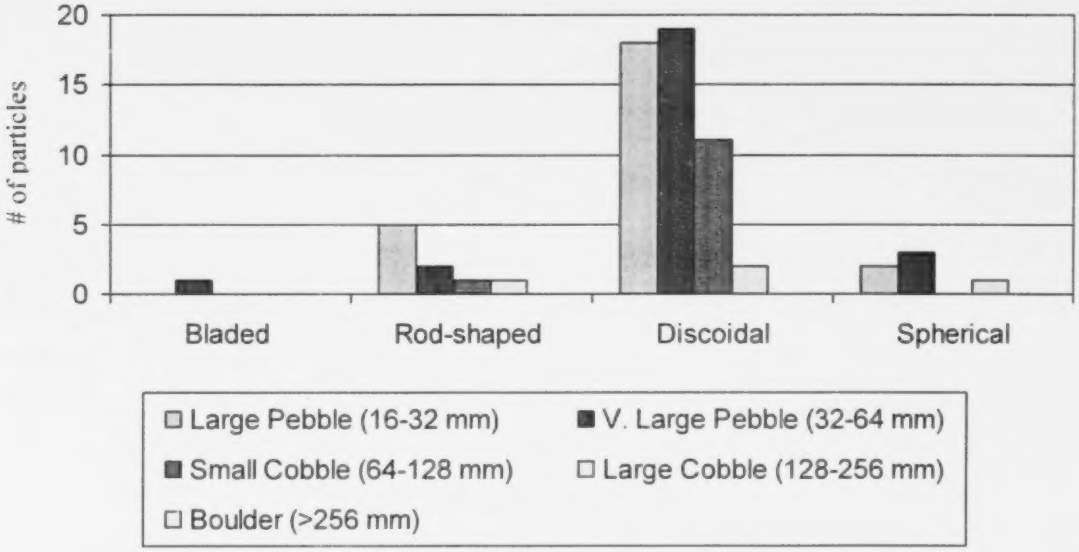
Roundness vs Particle Class Size

Sample #: TW-044-01

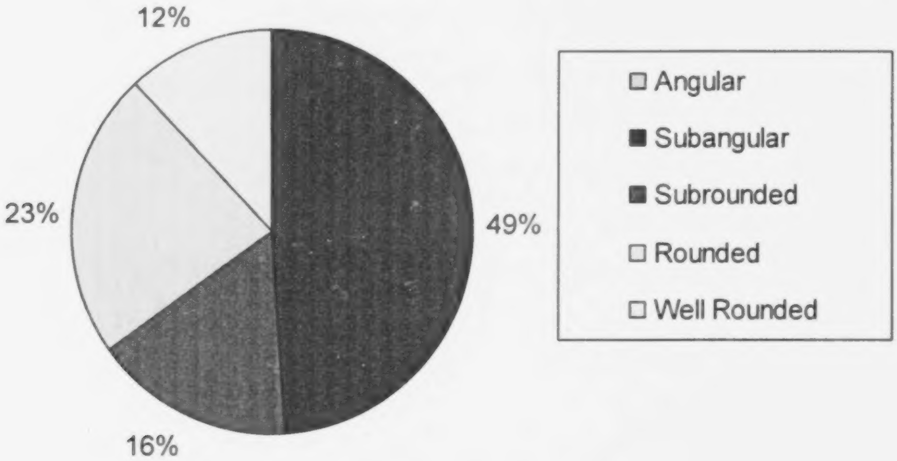


Sample # TW-044-01

Sphericity vs Particle Class Size

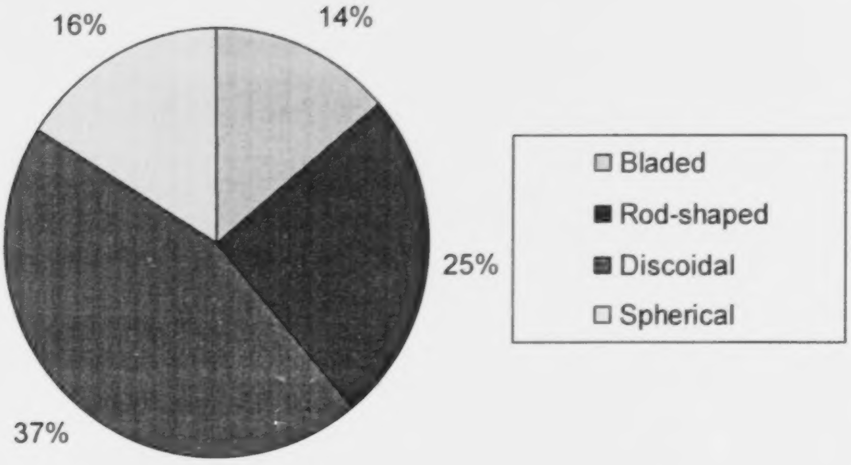


Average Roundness



Average = 0.60 (Subangular to Rounded)
Standard deviation = 0.1204

Average Sphericity



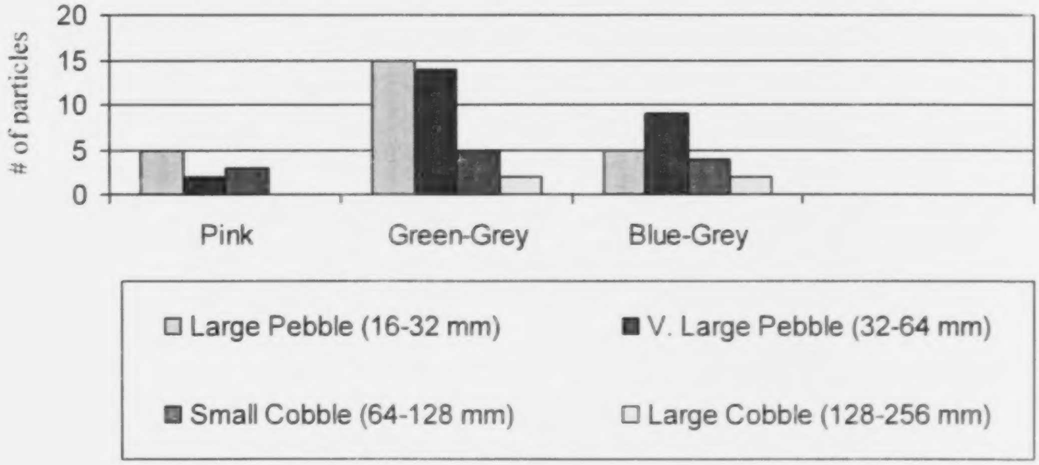
Average = 0.68 (Discoidal)
Standard deviation = 0.106

Color:

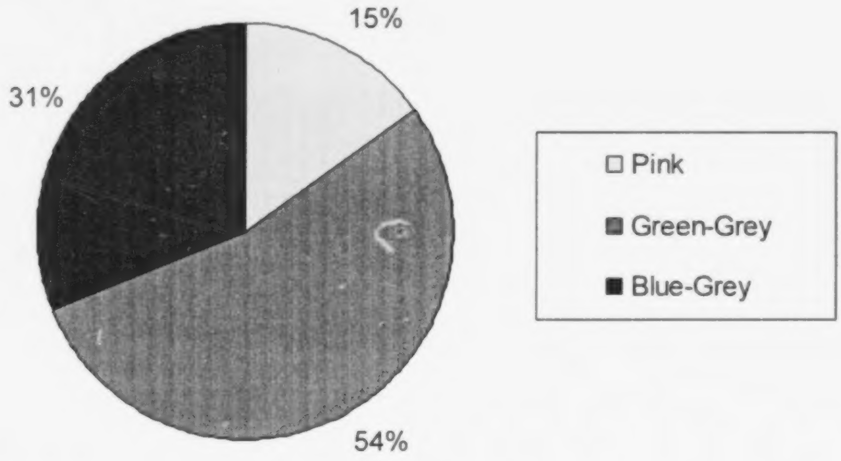
Sample # TW-044-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



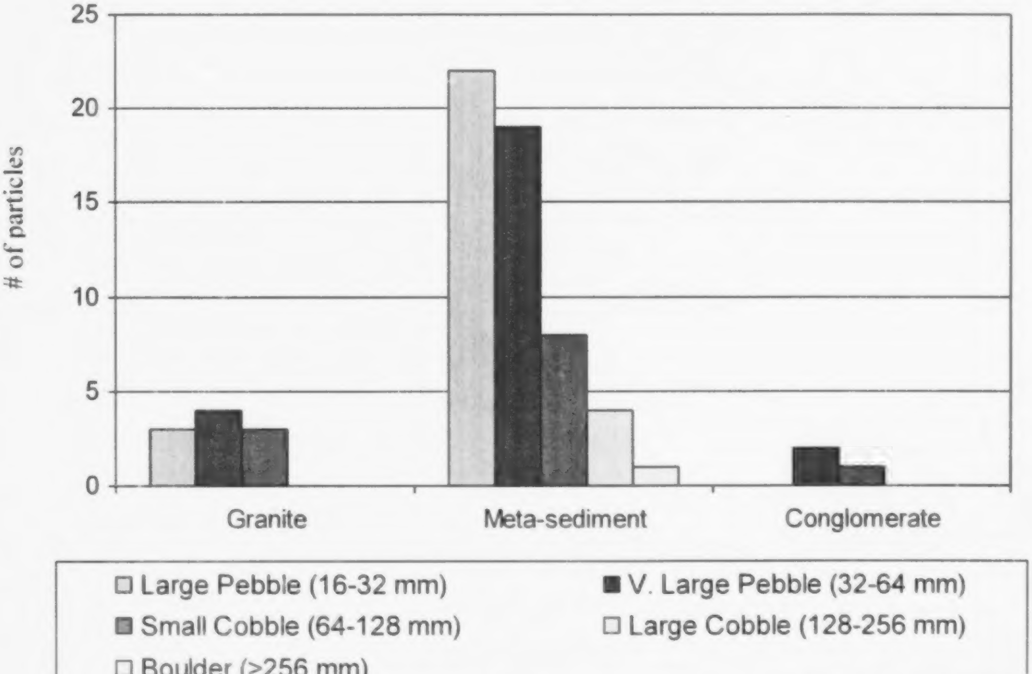
Rock Type:

Number of Different Textural Types

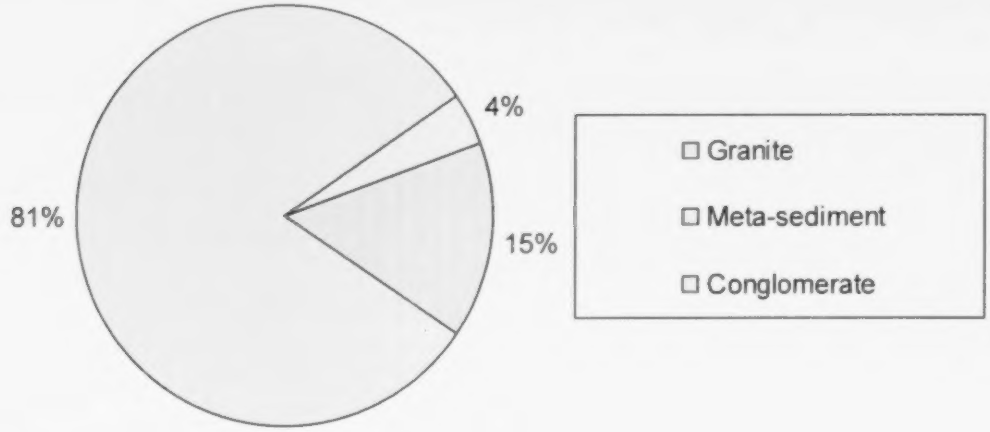
Sample # TW-044-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

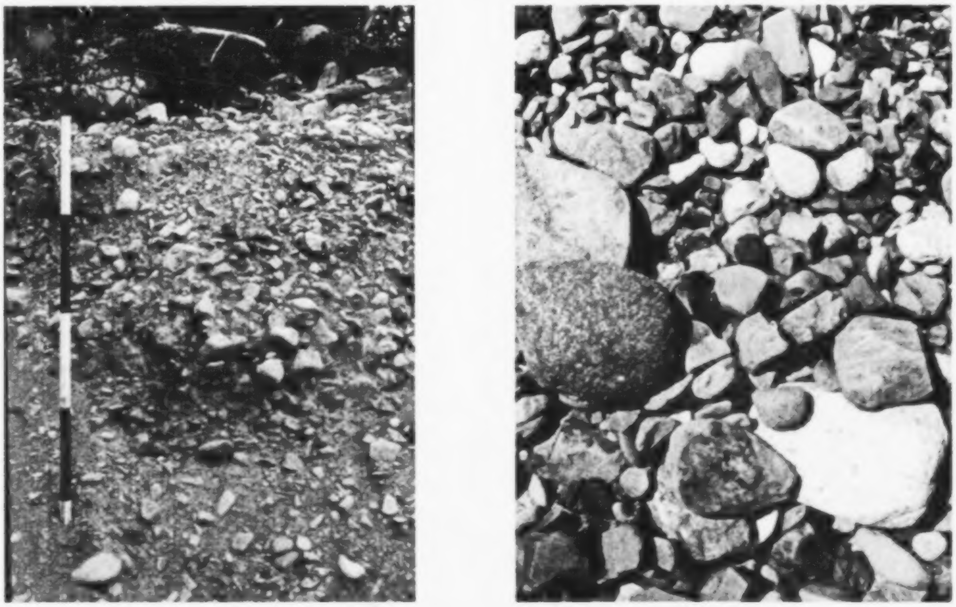
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-044-01



Typical pit face of large pebble to large cobble characterized by blue-grey and green-grey meta-sedimentary rocks, pinkish granite and coarse-grained clastic sedimentary rocks from an active pit near Hanwell Settlement, southern part of York County, New Brunswick.

Comments: A considerable resource of large to very large pebble and small to large cobble with some boulders. Material is generally subangular to rounded and discoidal in shape. Green-grey and blue-grey colored meta-sedimentary rocks with secondary pinkish granite and reddish brown sedimentary rocks are typical. This site appears to offer a large resource characterized by material of a wide range of size, color and texture. It is subsequently rated at a moderate to high potential (67%) for decorative material (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lyons Stream (north)

Sample #: TW-045-01 **Year:** 2001

Location: NTS: 21 G/10 County: York

Latitude: 45° 38.545" Longitude: 66° 51.660"

Zone: 19 UTM Northing: 5056200 UTM Easting: 666600

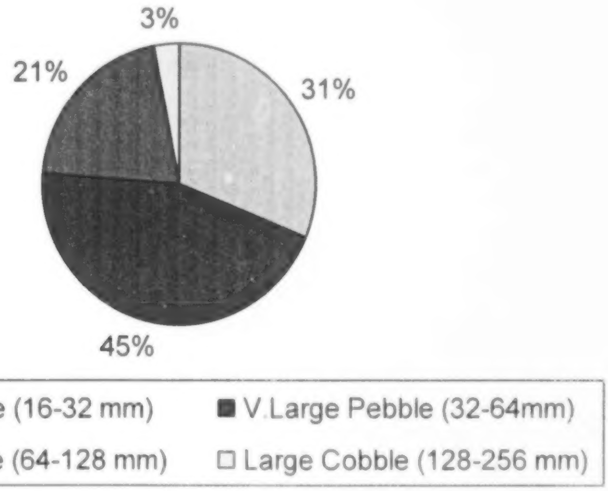
Description: A long, narrow < 200 m) active pit (>2 ha) situated just west of the Lyons Stream Road, 4.5 km south of Rooth and Hwy # 645.

Particle Size Classification:

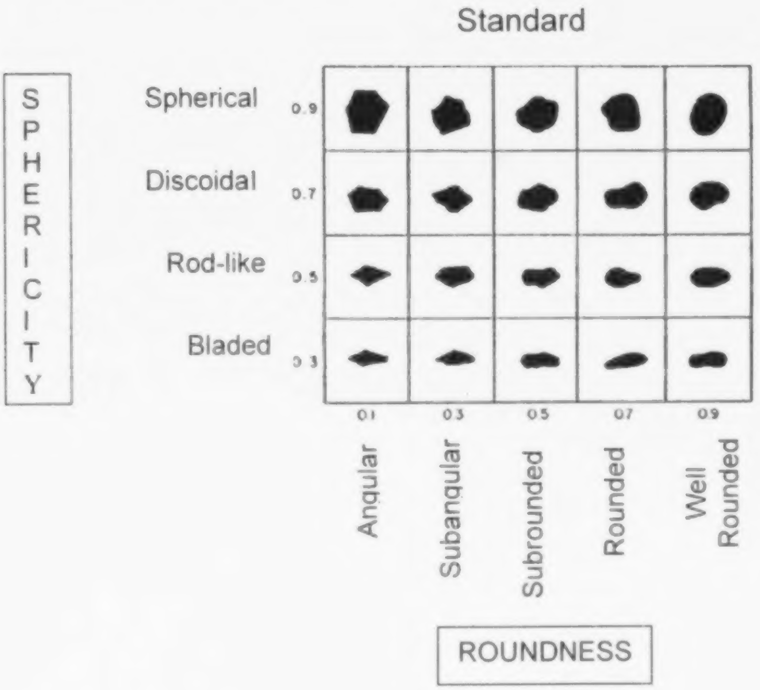
Pit–run Material

77% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**23** % medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material:

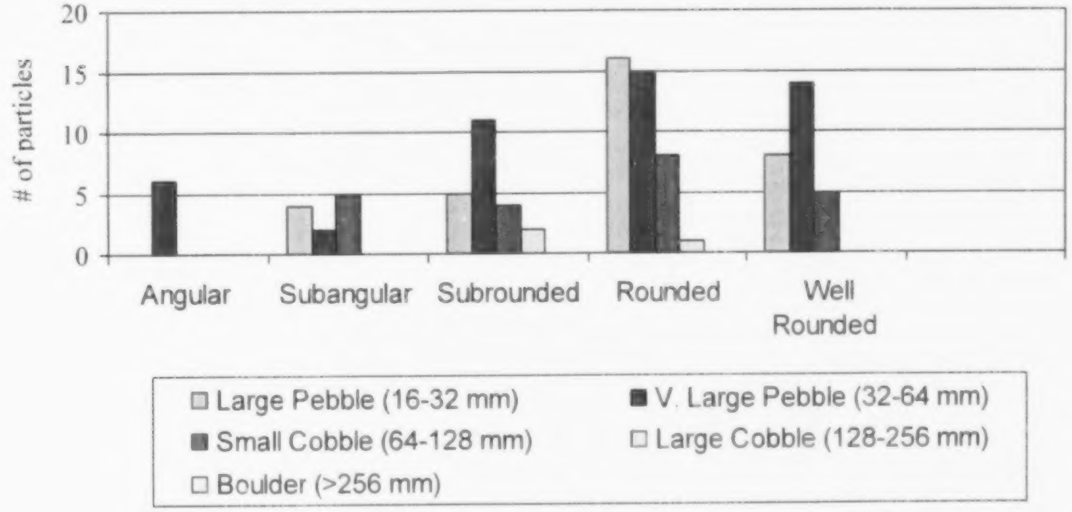


Roundness and Sphericity



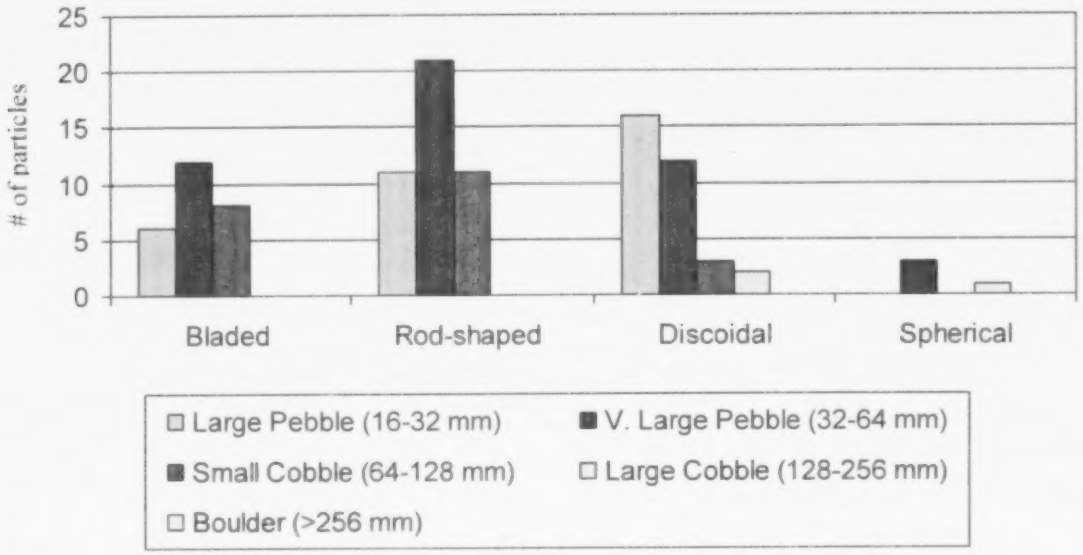
Roundness vs Particle Class Size

Sample #: TW-045-01

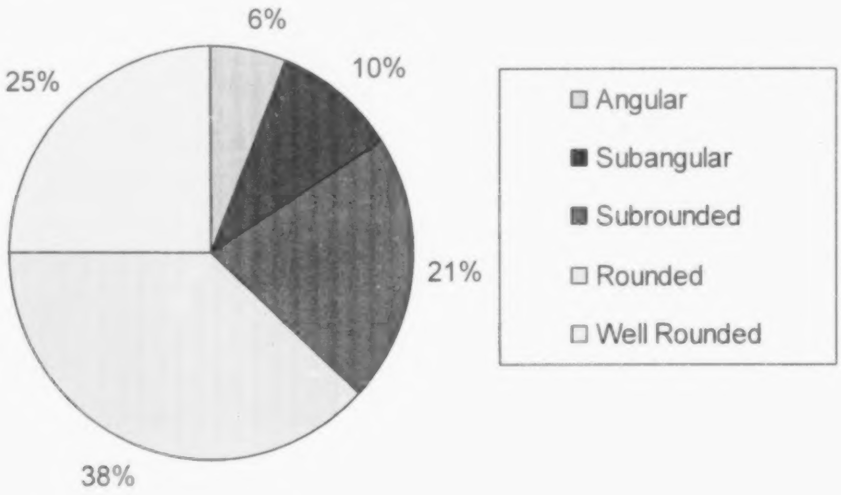


Sample # TW-045-01

Sphericity vs Particle Class Size

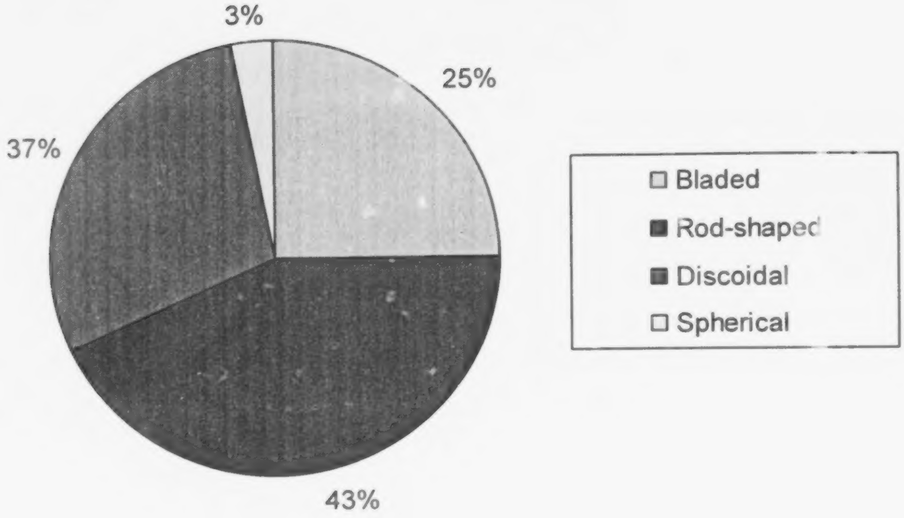


Average Roundness



Average = 0.63 (Rounded to Well Rounded)
Standard deviation = 0.227

Average Sphericity



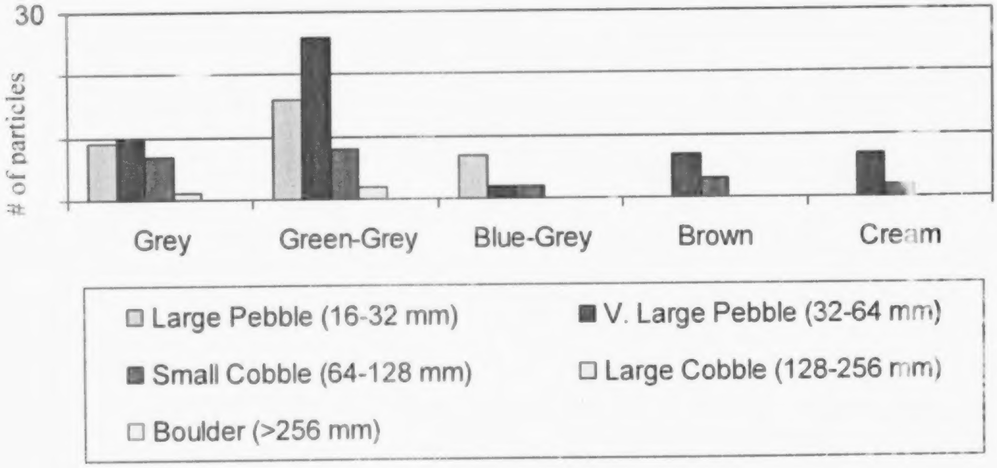
Average = 0.52 (Rod shaped to Discoidal)
Standard deviation = 0.227

Color

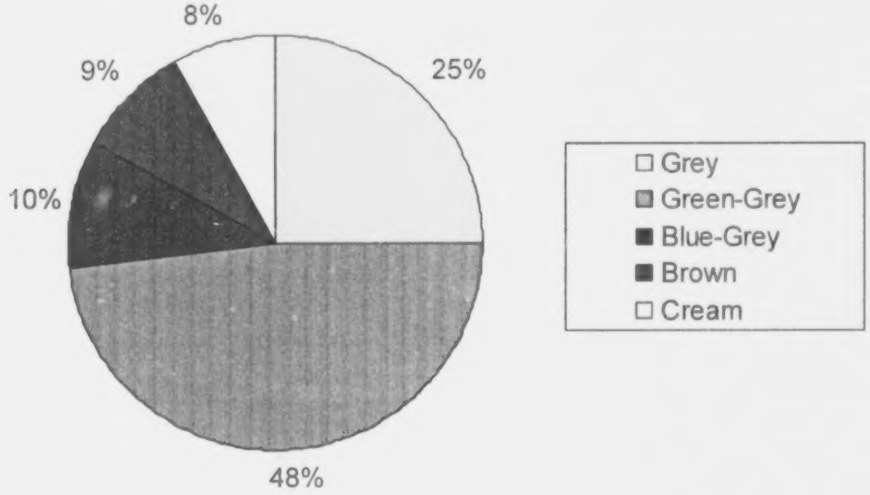
Sample # TW-045-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



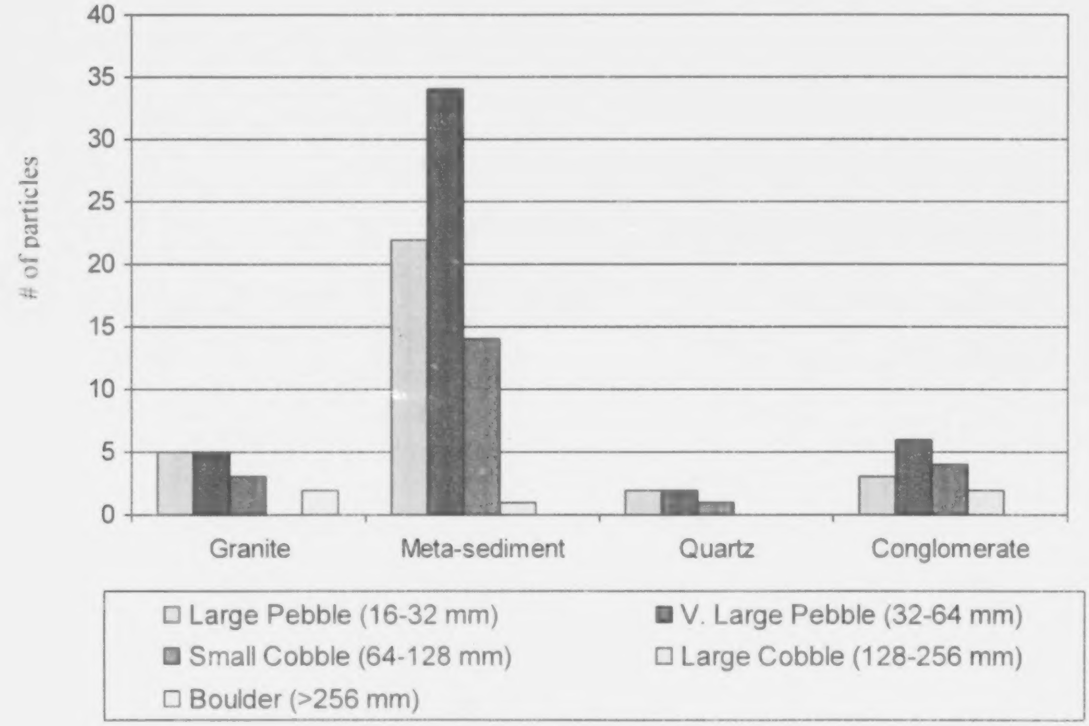
Rock Type:

Number of Different Textural Types

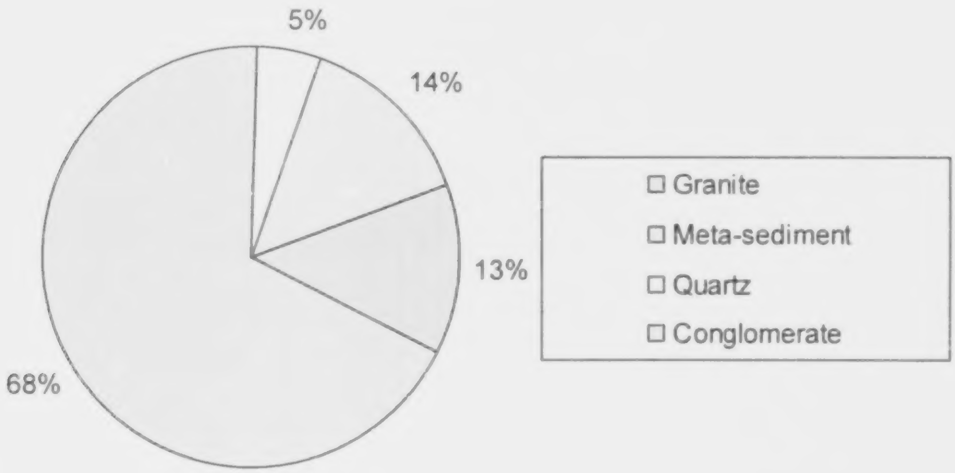
Sample # TW-045-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-045-01

Pit face featuring dominated by fine clastic fraction, typical of the granular resource at the Lyons Stream (north) pit site (#045-01), south of Rooth, southeastern part of York County, southwestern N.B..

Comments: Limited resource for large pebble and cobble. Pit run sample yielded 77% small pebble or finer material. The balance (23%) of coarser clastic fraction is comprised of rounded to well rounded, rod to discoidal shaped, large to very large pebble and small cobble. Green-grey and grey are the most common colors. Meta-sedimentary rocks and granite are the most common lithotypes present. The predominately fine grained nature of the resource at this location would tend to limit consideration as a high volume source of large pebble or coarser decorative material. Development potential for decorative material is therefore rated at moderate (63%) (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lyons Stream (south)

Sample #: TW-046-01 **Year:** 2001

Location: NTS: 21 G/10 County: York

Latitude: 45° 37.892” Longitude: 66° 50.713”

Zone: 19 UTM Northing: 5054600 UTM Easting: 667600

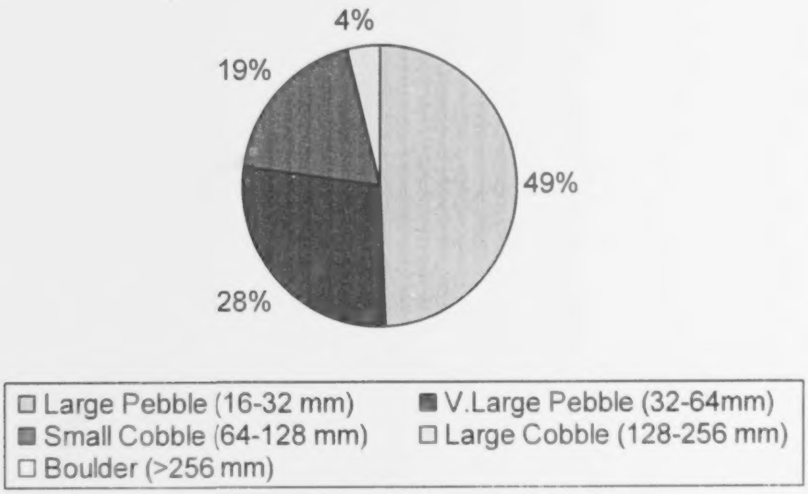
Description: A small (<1/2 ha), newly opened and active pit adjacent Lyons Stream Road; about 6 km south of its intersection with and Hwy # 645 near Rooth and 0.5 km north of the North Branch Oromocto River.

Particle Size Classification:

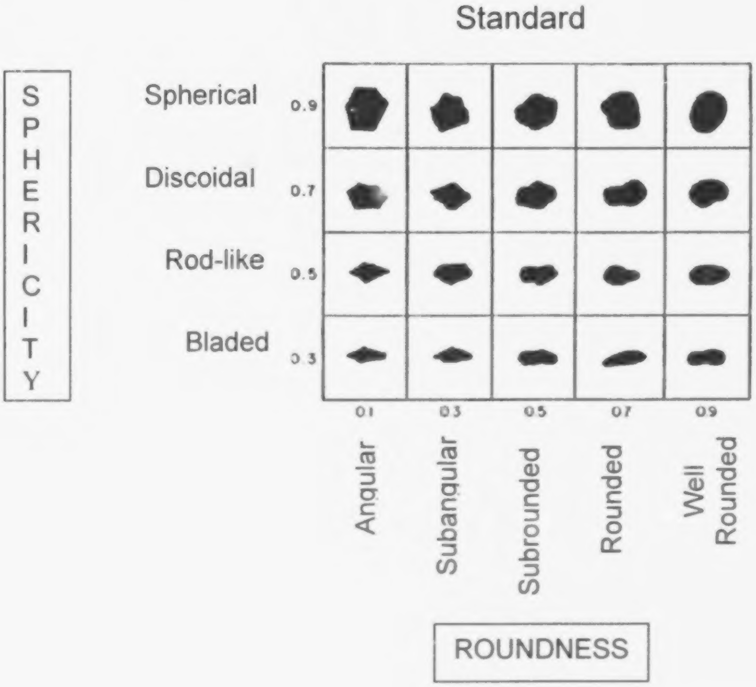
Pit–run Material

47% clay, sand and small pebbles (i.e. all material <25.4 mm or <1”)	**53 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1”)

Particle Size Classification for > 25.4mm material

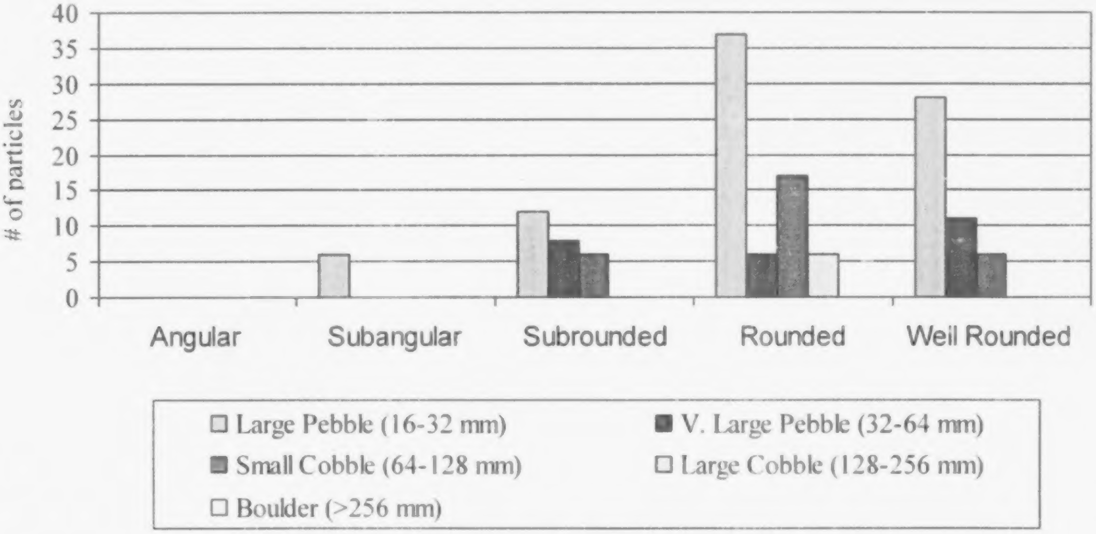


Roundness and Sphericity:



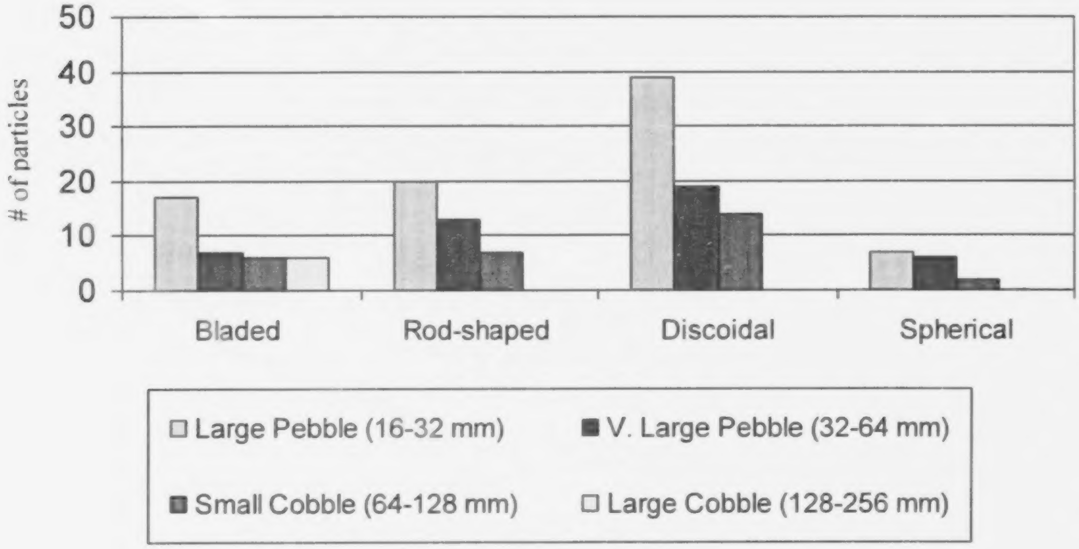
Roundness vs Particle Class Size

Sample # TW-046-01

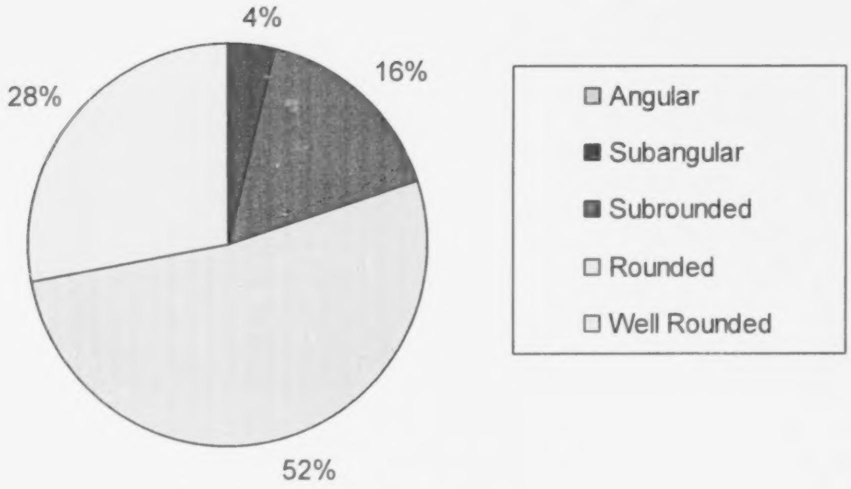


Sample # TW-046-01

Sphericity vs Particle Class Size

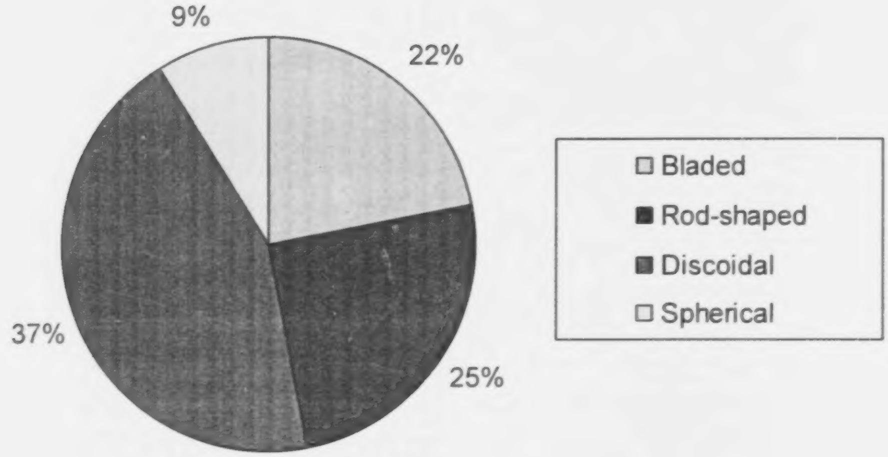


Average Roundness



Average = 0.70 (Rounded to Well Rounded)
Standard deviation = 0.119

Average Sphericity



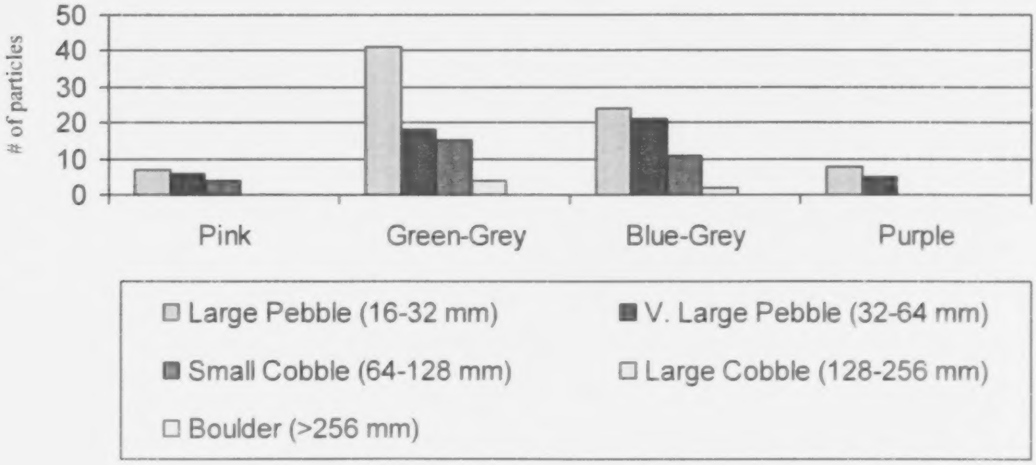
Average = 0.58 (Discoidal to Rod-shaped)
Standard deviation = 0.192

Color:

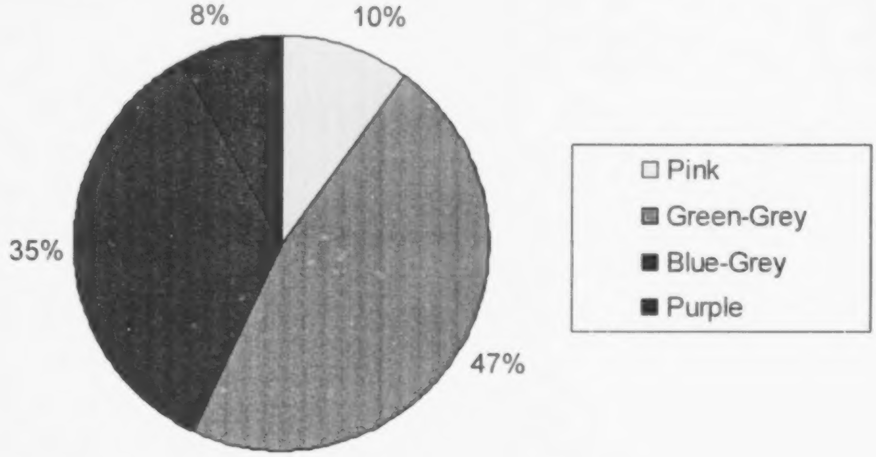
Sample # TW-046-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



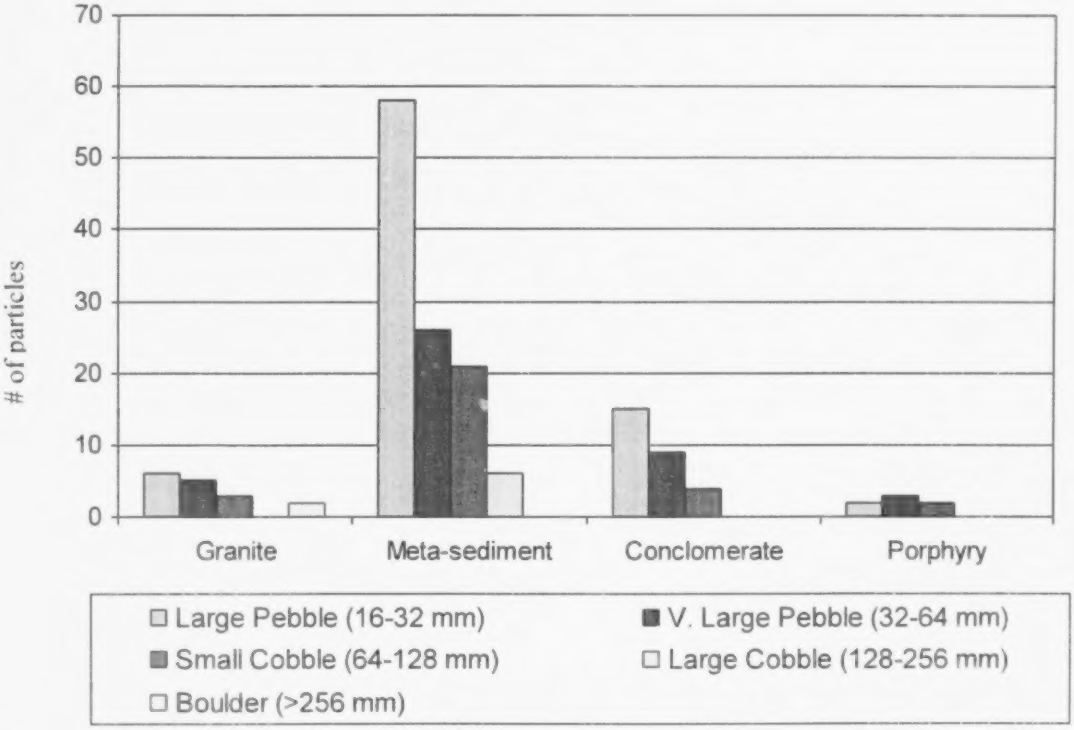
Rock Type:

Number of Different Textural Types

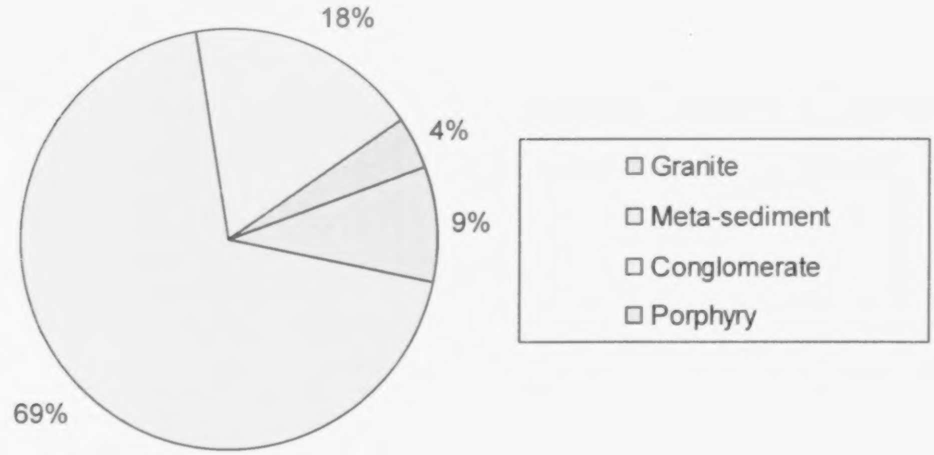
Sample # TW-028-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-046-01

Insitu and scree pile, blue-grey and green-grey, large to very large pebble and cobble from an active pit near Rooth, southeastern part of York County, southwestern New Brunswick

Comments: A large proportion of the sampled material from this pit is small pebble and finer. Almost 20% of coarse fraction is small cobble. In general, particles are rounded and well rounded, comprised of meta-sediment with lesser conglomerate and granite. Green-grey and blue grey are the most prominent colors. The rounded nature and contrasting shapes and colors of this material favors it as a potential source of decorative pebble and cobble, however the resource appears to be quite limited in size. A decorative rating potential for this resource is moderate to low (55%) (see Appendix D).

New Brunswick Crown Land Pebble,Cobble and Boulder Survey

Site Name: Lee Hill

Sample #: TW-047-01 **Year:** 2001

Location: NTS: 21 G/10 County: York

Latitude: 45° 42.144" Longitude: 66° 40.382"

Zone: 19 UTM Northing: 5063350 UTM Easting: 681000

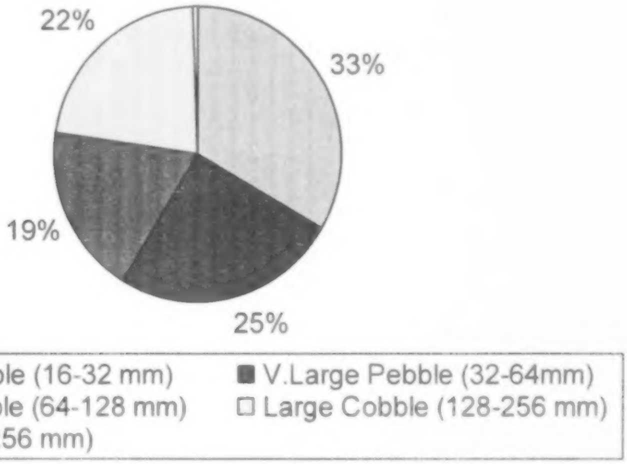
Description: A small (<1/2 ha), active pit, 500 m west of Hwy # 101 and 325 m south of Tracyville.

Particle Size Classification:

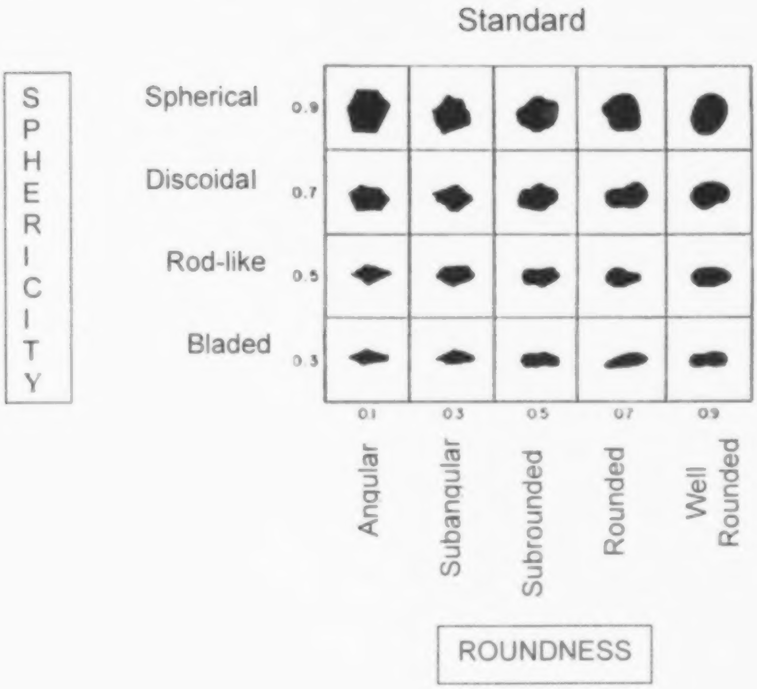
Pit–run Material

41% clay, sand and small pebbles (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

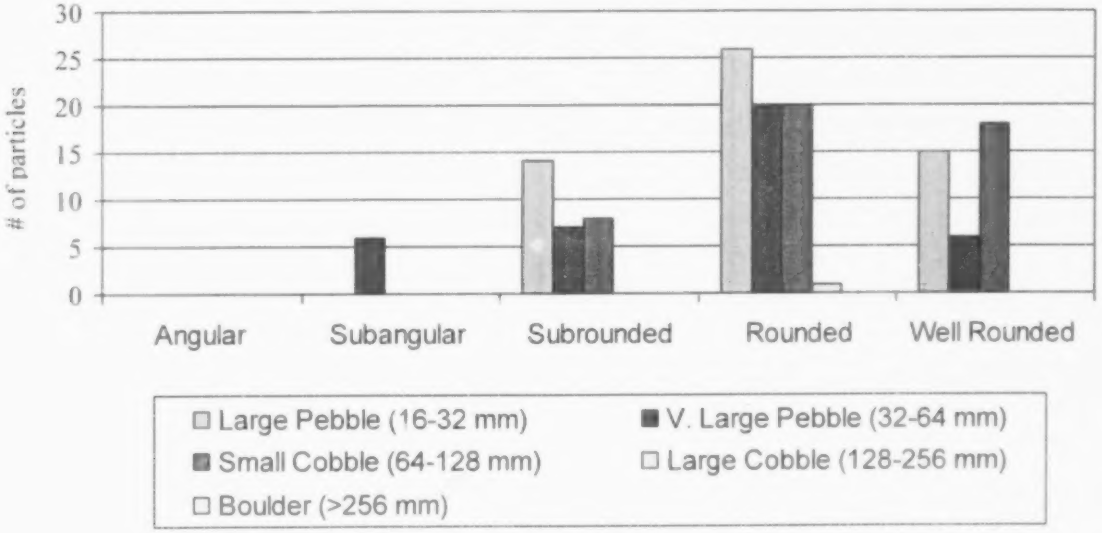


Roundness and Sphericity:



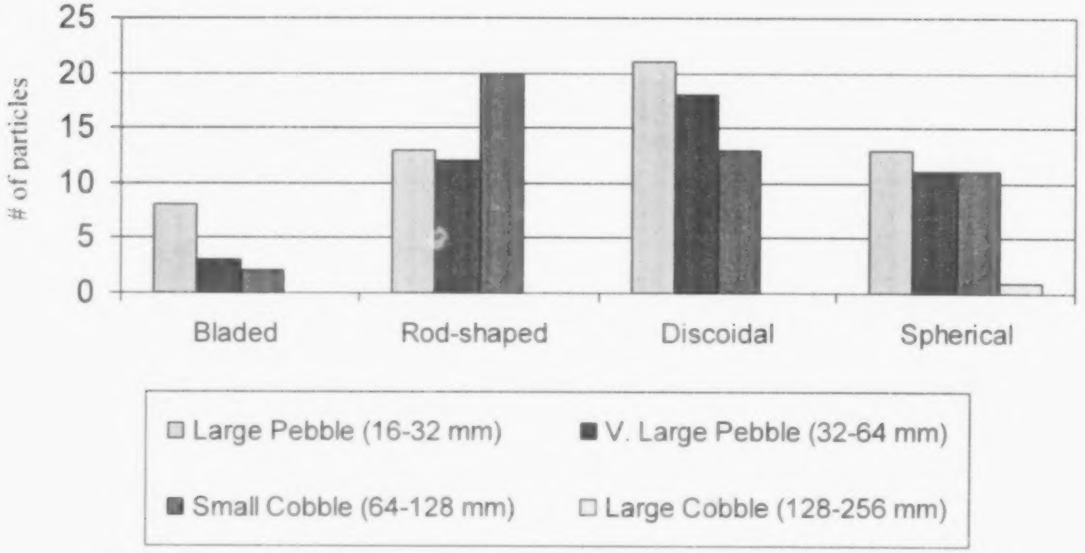
Roundness vs Particle Class Size

Sample # TW-047-01

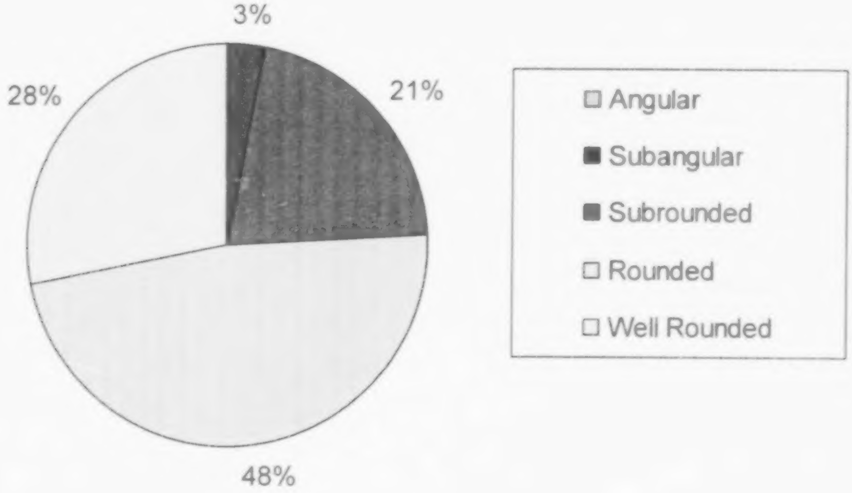


Sample # TW-047-01

Sphericity vs Particle Class Size

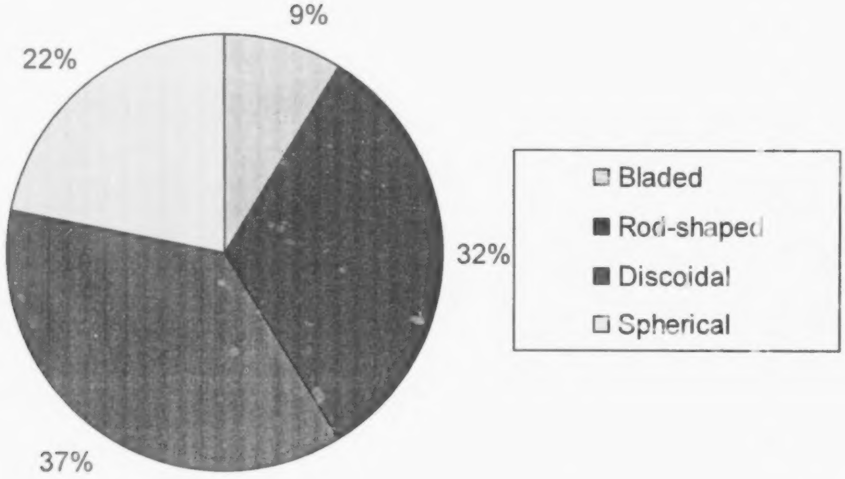


Average Roundness



Average = 0.69 (Rounded to Well Rounded)
Standard deviation = 0.172

Average Sphericity



Average = 0.65 (Discoidal to Rod shaped)
Standard deviation = 0.179

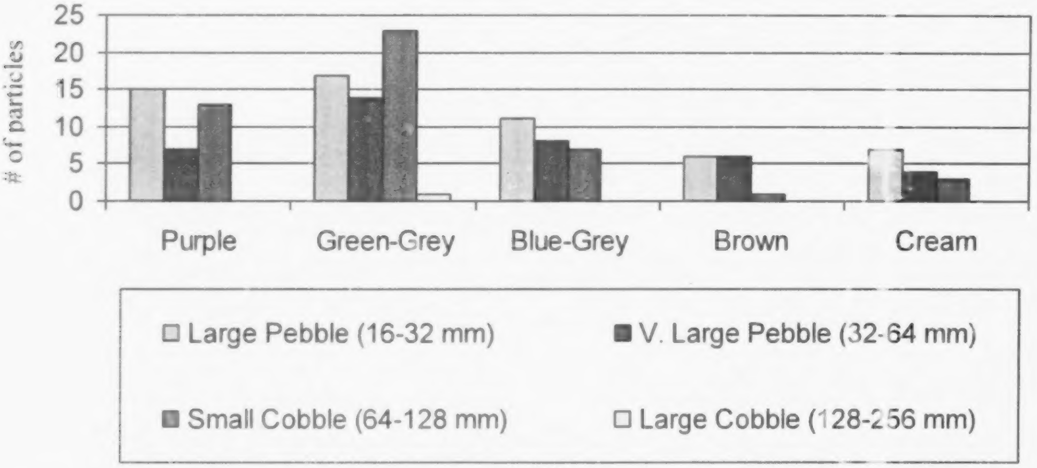
Color:

Sample # TW-047-01

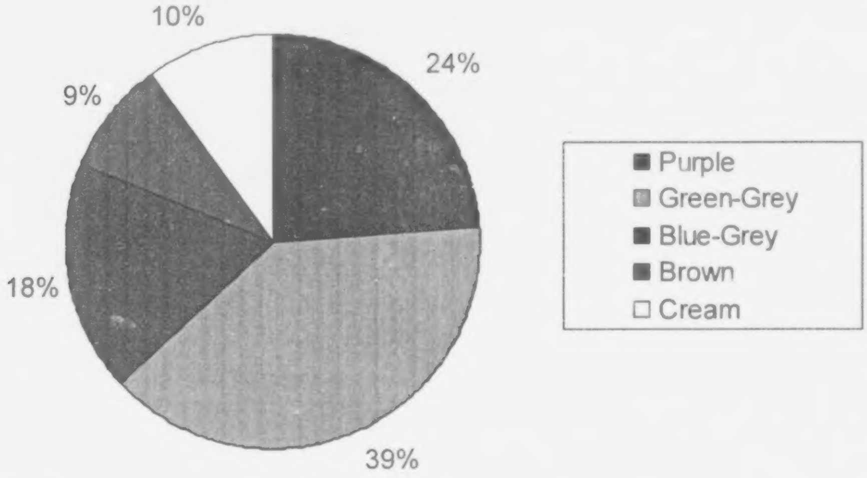
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



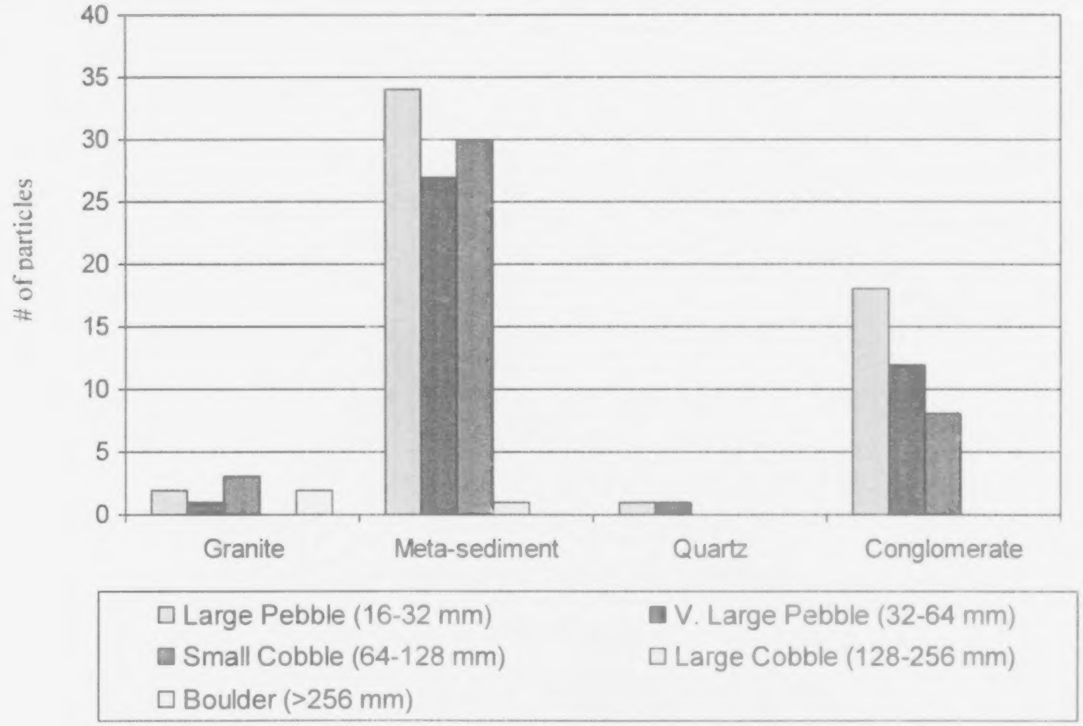
Rock Type:

Number of Different Textural Types

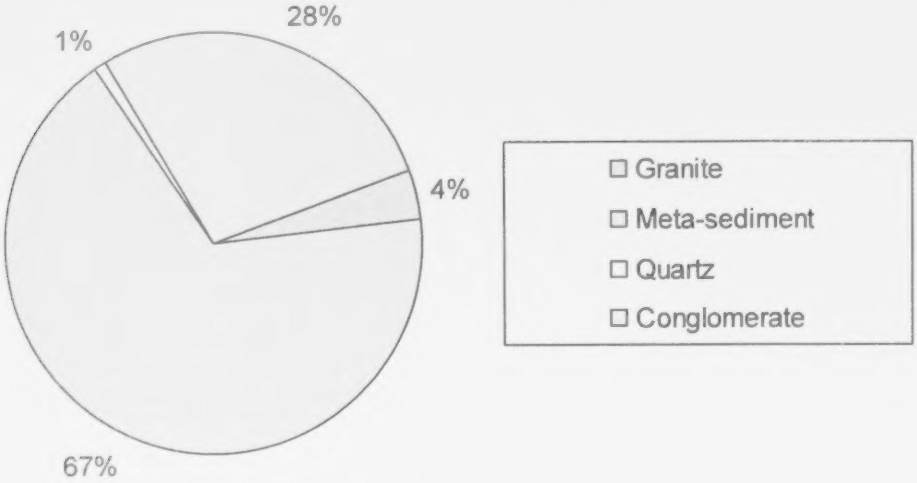
Sample # TW-047-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

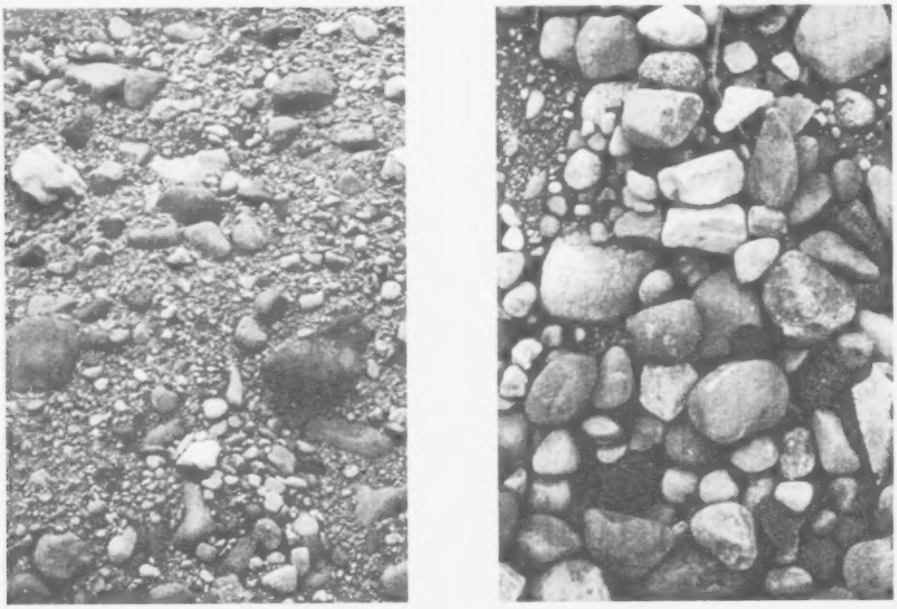
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-047-01



Typical pit face and associated scree pile containing an assortment of rounded meta-sedimentary and sedimentary rock with a significant proportion of small and large cobble, near Tracyville, southern part of Queens County, southwestern New Brunswick.

Comments: A small pit with a good size and color assortment of rounded meta-sedimentary and sedimentary rock. Although the decorative stone potential is rated moderate to high (75%) the resource on Crown Land appears fairly limited (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Otter Brook (south)

Sample #: TW-048-01 **Year:** 2001

Location: NTS: 21 G/10 County: York

Latitude: 45° 34.602" Longitude: 66° 48.403"

Zone: 19 UTM Northing: 5049400 UTM Easting: 670200

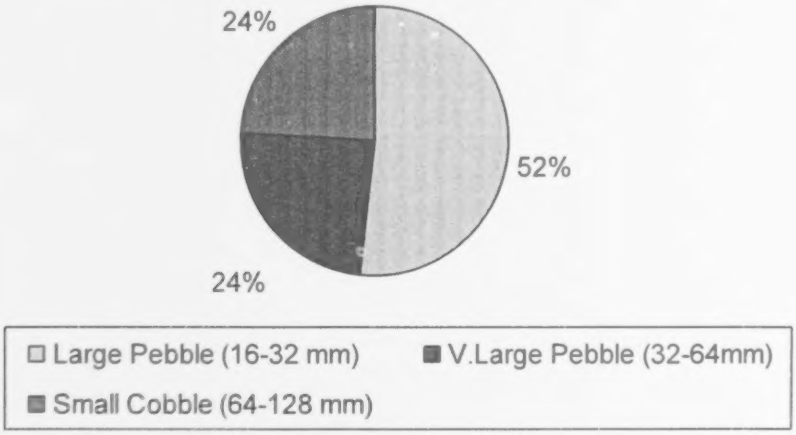
Description: A small (<1/2 ha), pit just east of the Otter Brook Road and 1.5 km south of Little Lake-Upper Tracy Road.

Particle Size Classification:

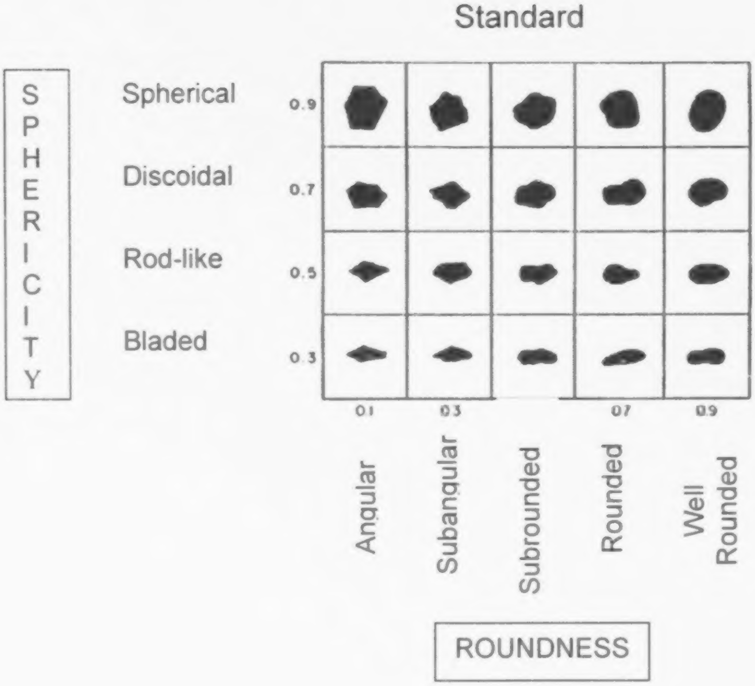
Pit–run Material

68 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**32 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

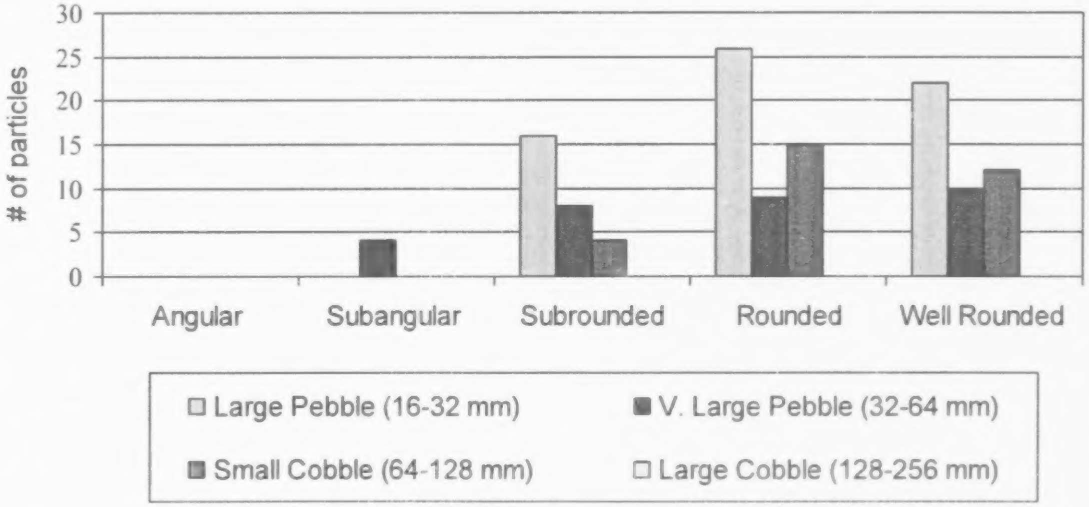


Roundness and Sphericity:

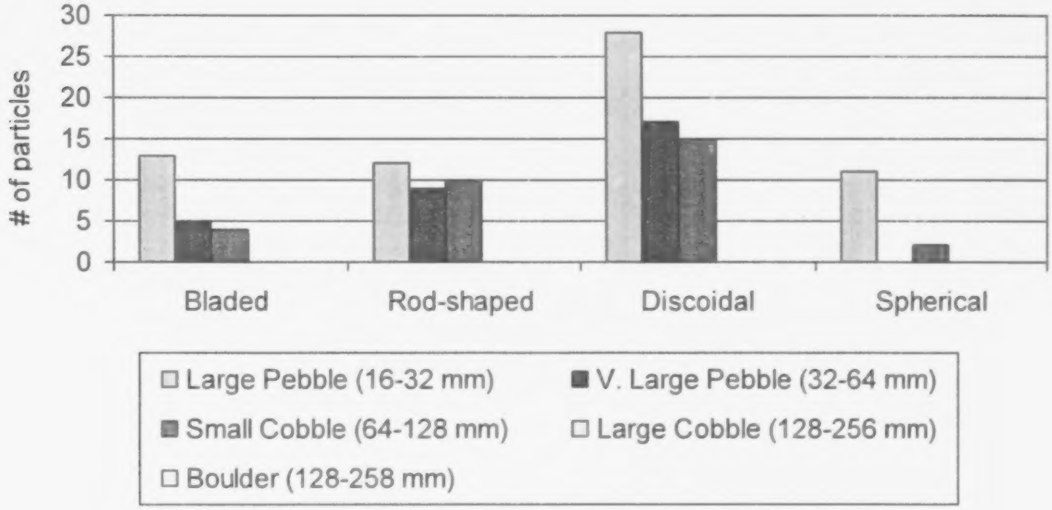


Roundness vs Particle Class Size

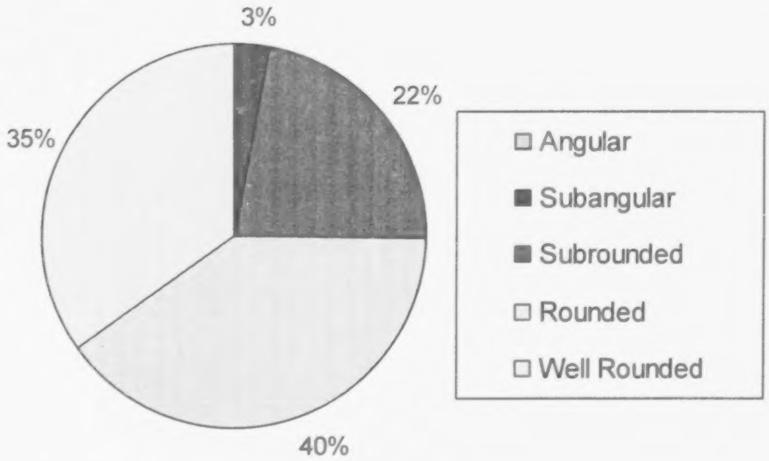
Sample # TW-048-01



Sphericity vs Particle Class Size

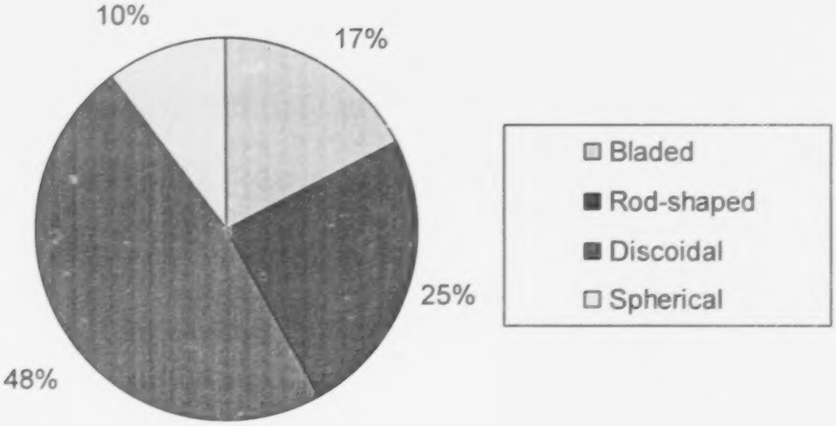


Average Roundness



Average = 0.71 (Rounded to Well Rounded)
Standard deviation = 0.167

Average Sphericity



Average = 0.59 (Discoidal to Rod shaped)
Standard deviation = 0.156

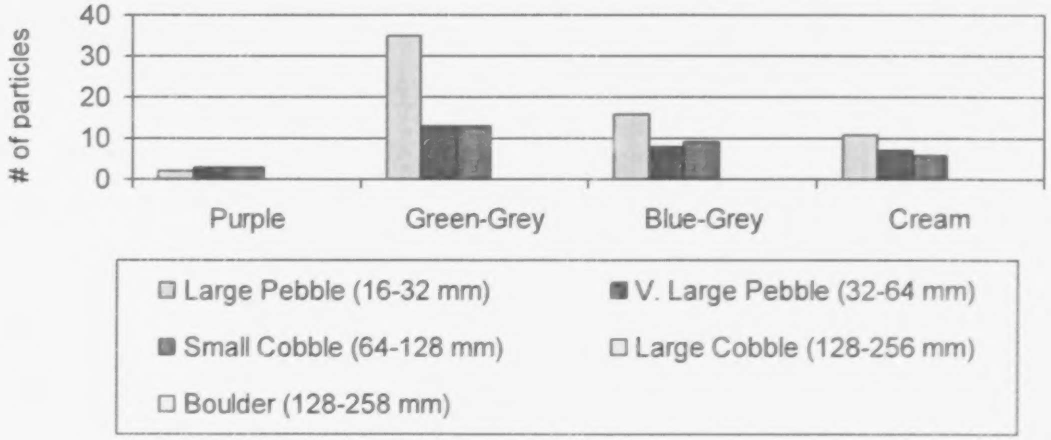
Color:

Sample # TW-048-01

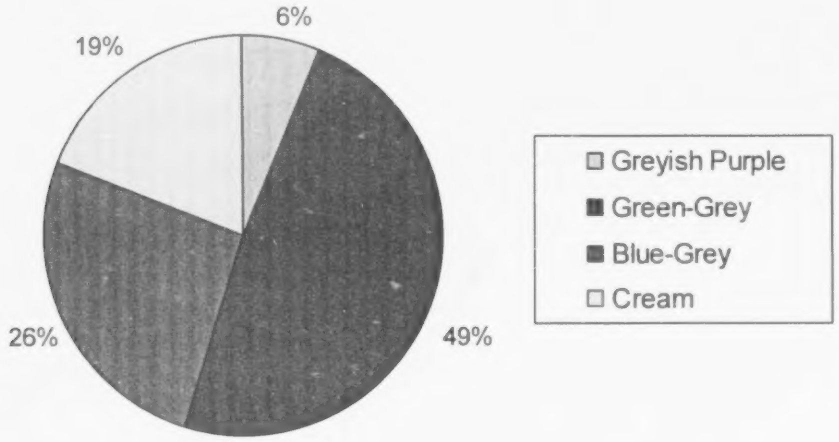
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	x	

Color Classification vs Particle Class Size



Average Color Distribution



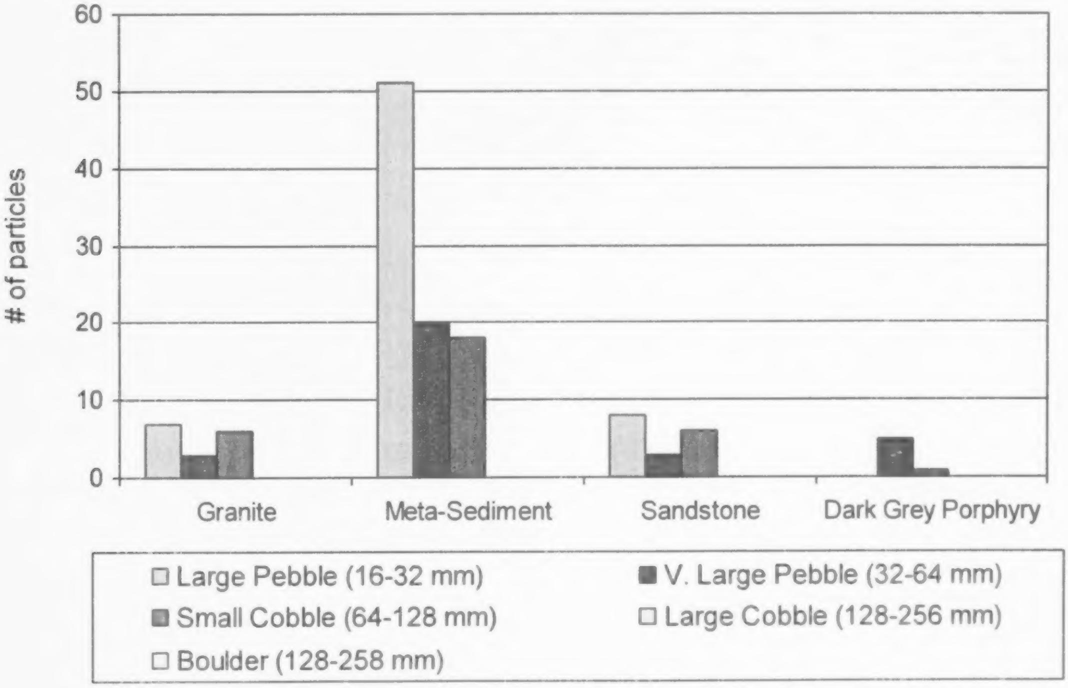
Rock Type:

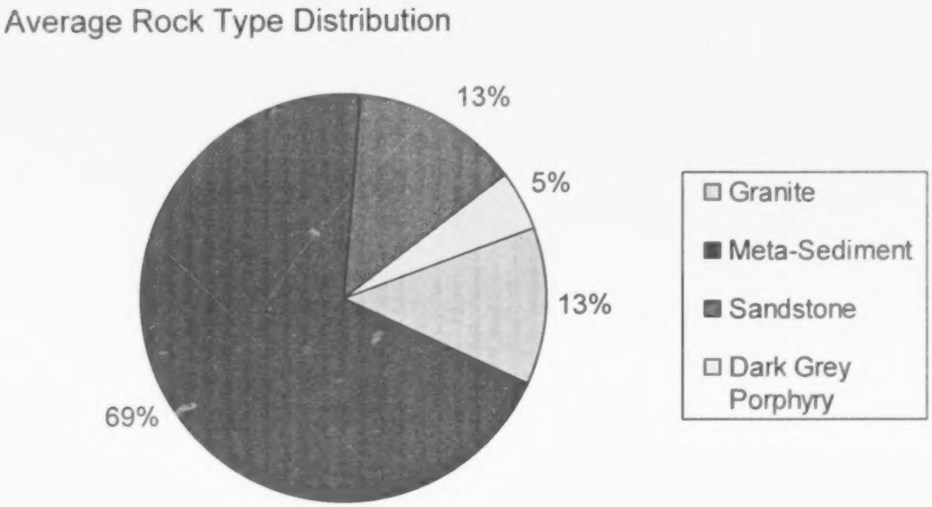
Number of Different Textural Types

Sample # TW-048-01

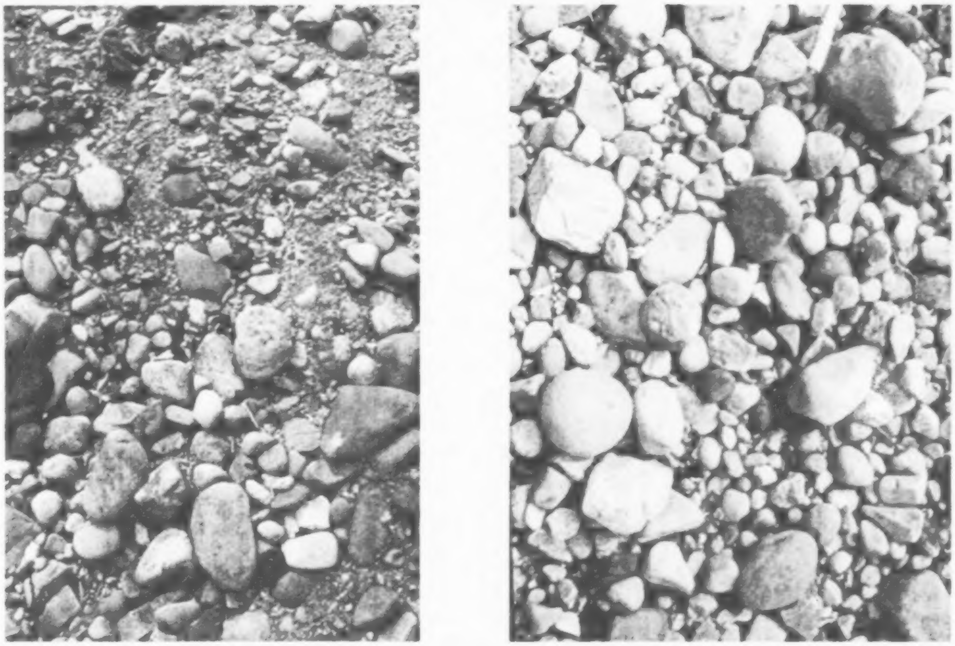
Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size





Sample # TW-048-01



Pit face and associated scree pile of rounded, grey large pebble from small pit near Tracy, southern part of Queens County, southwestern New Brunswick

Comments: A small, abandoned pit with abundance of fine material. Green-grey and blue-grey rounded to well-rounded meta-sedimentary rocks predominate. Coarser material and the size of the resource are quite limited. A moderate to low development potential (55%) for a extensive decorative stone resource (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Otter Brook (north)

Sample #: TW-049-01 **Year:** 2001

Location: NTS: 21 G/10 County: York

Latitude: 45° 34.971" Longitude: 66° 49.029"

Zone: 19 UTM Northing: 5049750 UTM Easting: 670200

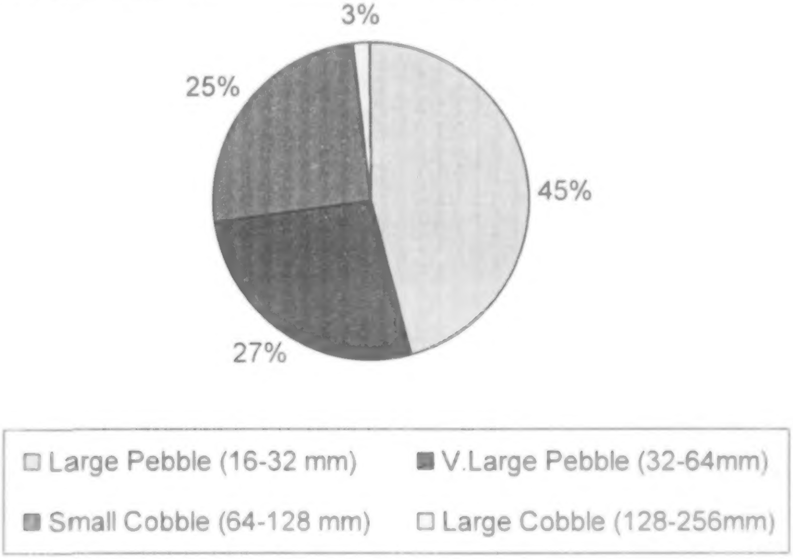
Description: A small (<1/2 ha), pit just east of the Otter Brook Road and 1.5 km south of Little Lake-Upper Tracy Road.

Particle Size Classification:

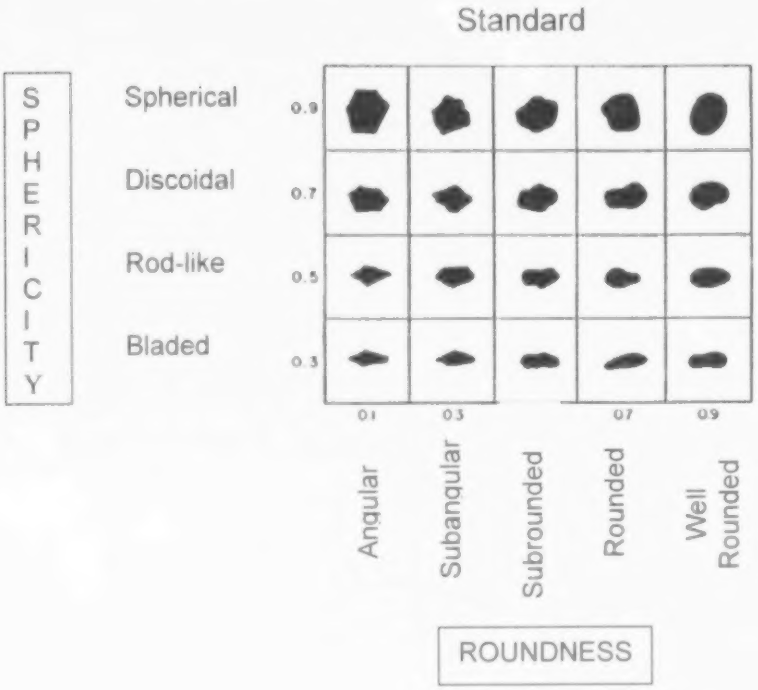
Pit–run Material

45 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**55 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

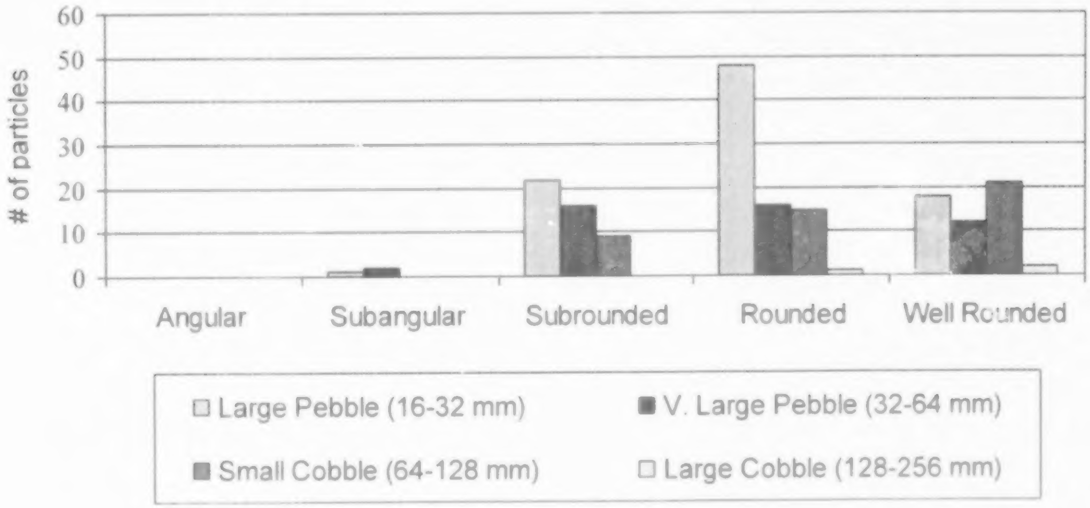


Roundness and Sphericity:

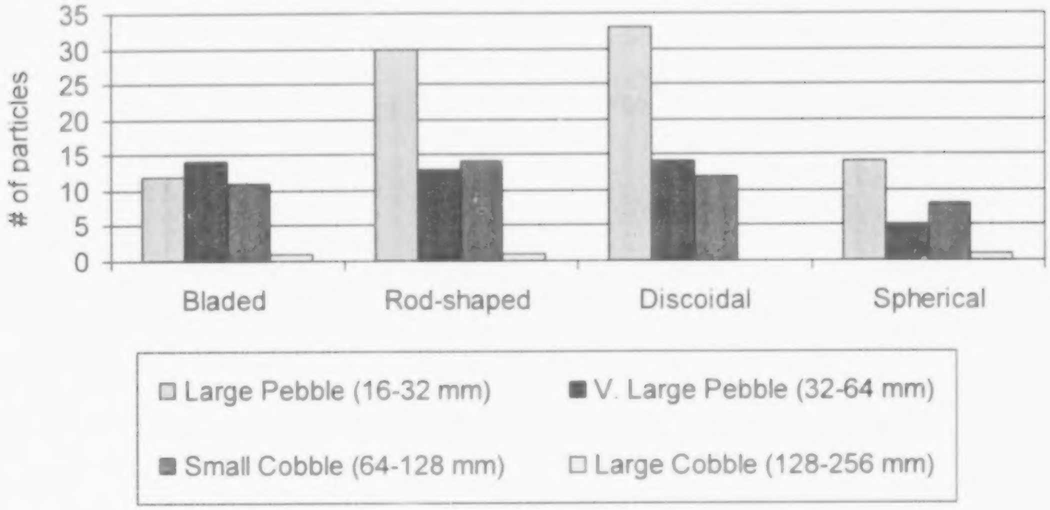


Roundness vs Particle Class Size

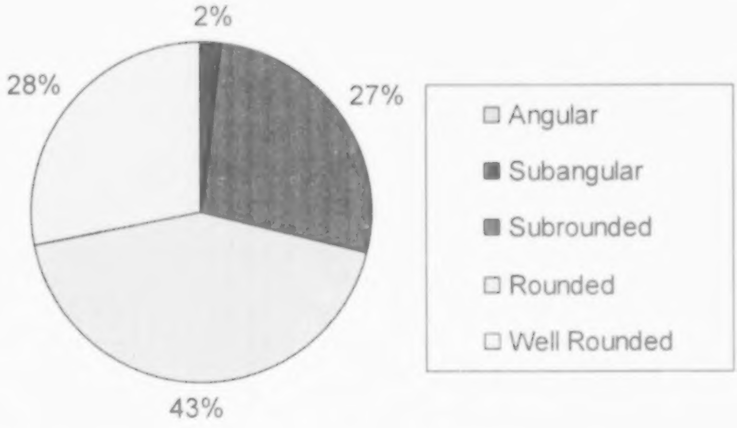
Sample # TW-049-01



Sphericity vs Particle Class Size

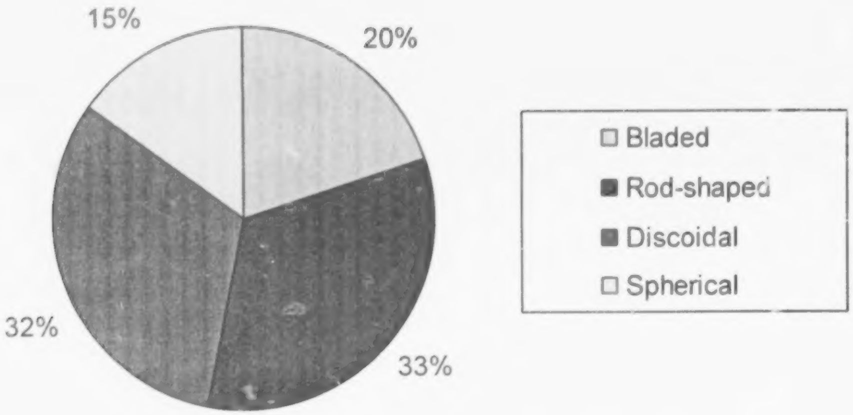


Average Roundness



Average = 0.70 (Rounded to Well Rounded)
Standard deviation = 0.158

Average Sphericity



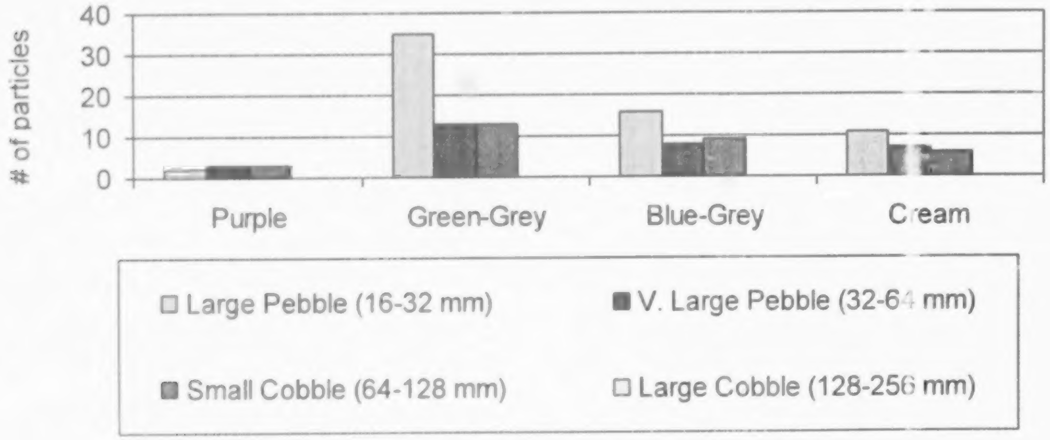
Average = 0.58 (Rod Shaped to Discoidal)
Standard deviation = 0.195

Color:

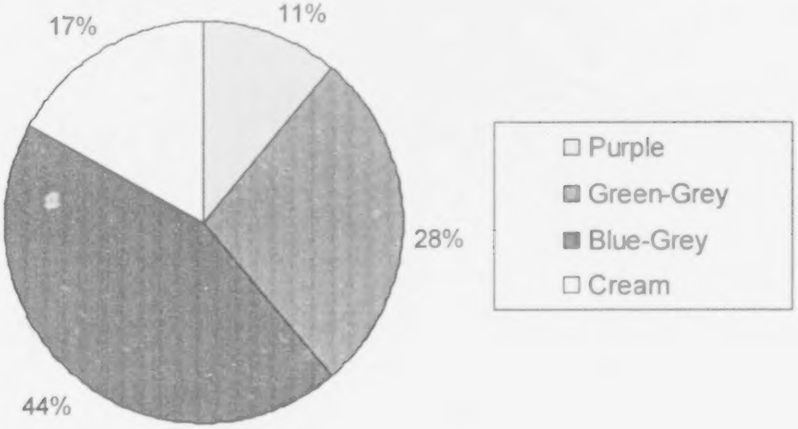
Sample # TW-049-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



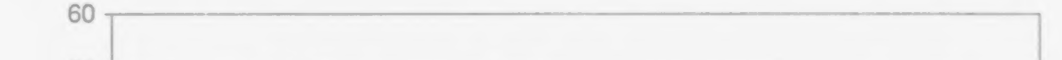
Rock Type:

Number of Different Textural Types

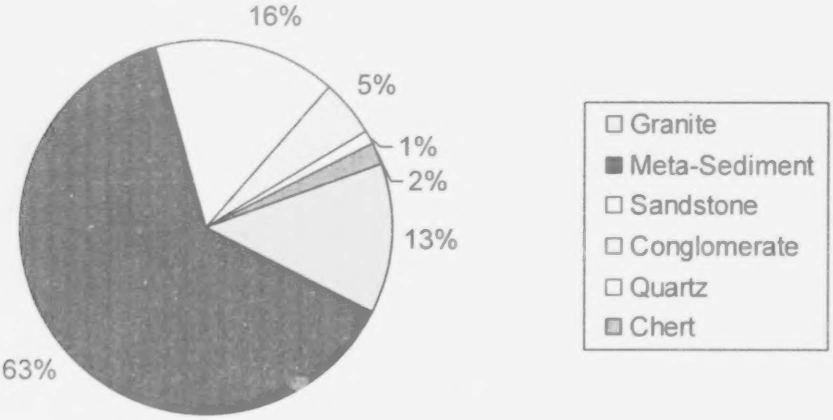
Sample # TW-049-01

Limited (<2)	Several (2-4)	Many (>4)
		X

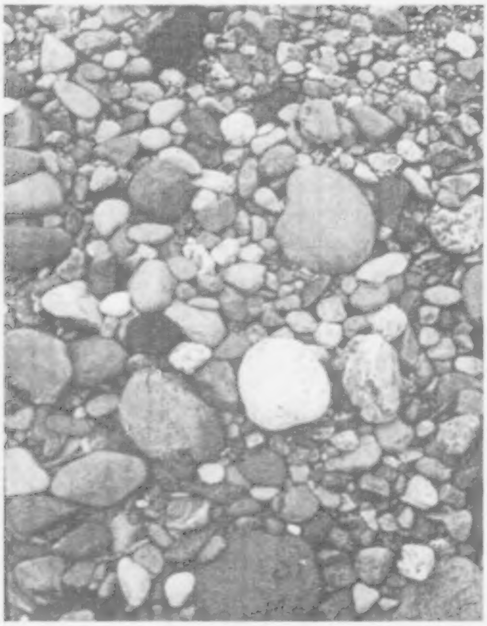
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-049-01



Typical mix of sedimentary, granitic and meta-sedimentary pebbles and small cobble in a scree pile near Otter Brook, southern part of Queens County, southwestern New Brunswick.

Comments: A small, abandoned pit with abundance of large pebble with equal very large pebble to small cobble. Green-grey and blue-grey rounded to well-rounded meta-sedimentary rocks predominate however varied rock types offer interesting textural contrast. The resource appears to be quite limited in size. A moderate development potential (60%) for a decorative stone resource (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: McDougall Lake

Sample #: TW-052-01 **Year:** 2001

Location: NTS: 21 G/07 County: York

Latitude: 45° 20.825” Longitude: 66° 45.501”

Zone: 19 UTM Northing: 5023500 UTM Easting: 675750

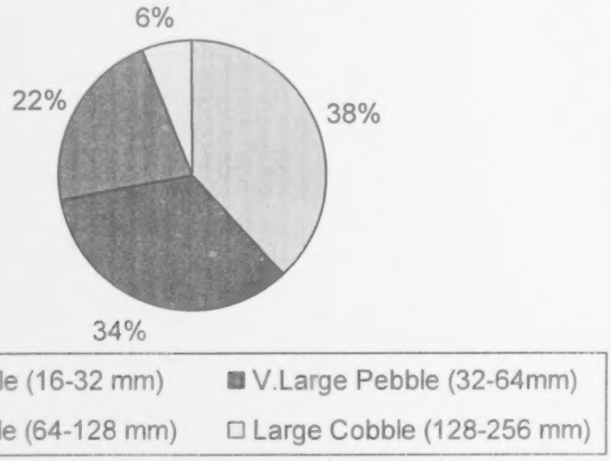
Description: A large (>5 ha), active pit, 1.5 km east of the northern tip of McDougall Lake, 500 m east of Hwy # 785 (St. George-Mount Pleasant Road) and 1.5 km south of the intersection of Hwy # 785 and the Lepreau Road.

Particle Size Classification:

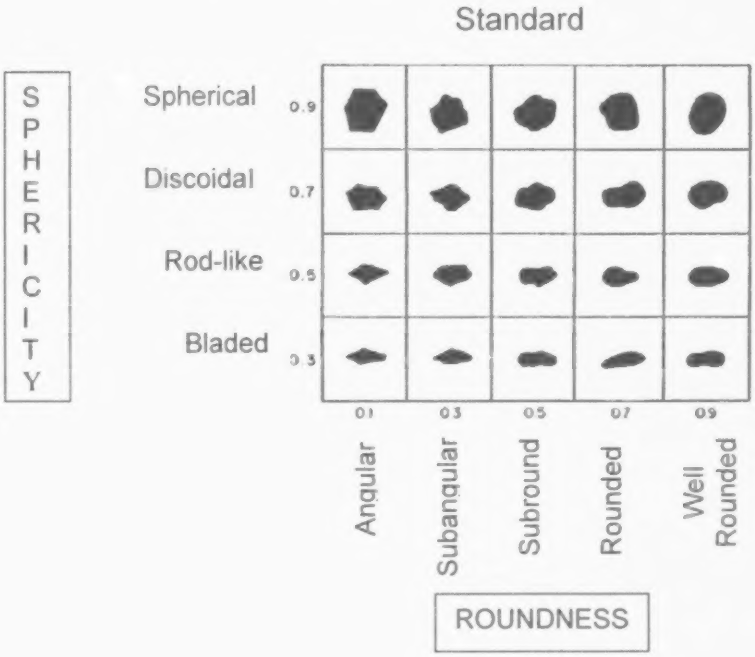
Pit–run Material

36 % clay, sand and small pebble (i.e. all material <25.4 mm or <1”)	**64 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1”)

Particle Size Classification for > 25.4mm material

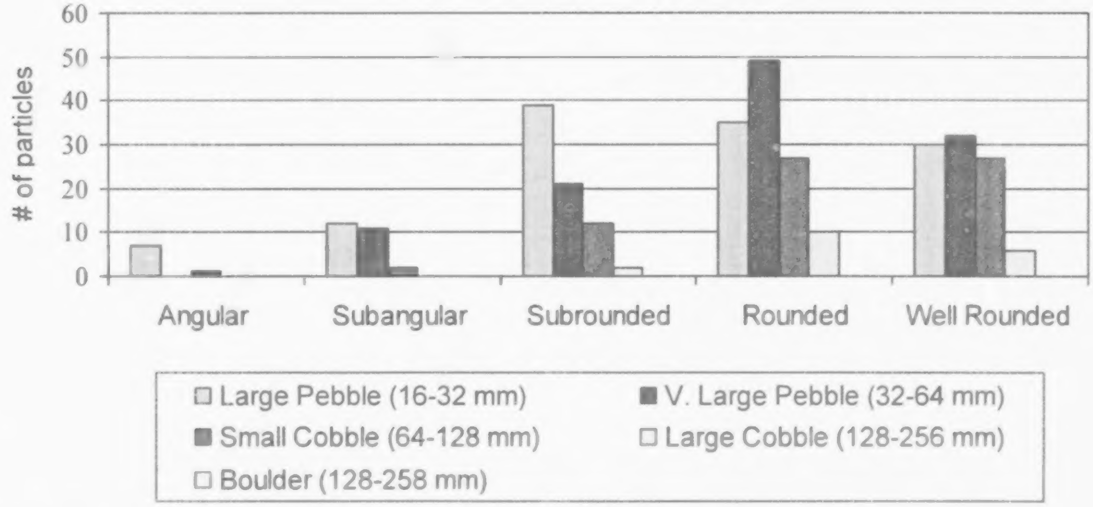


Roundness and Sphericity:

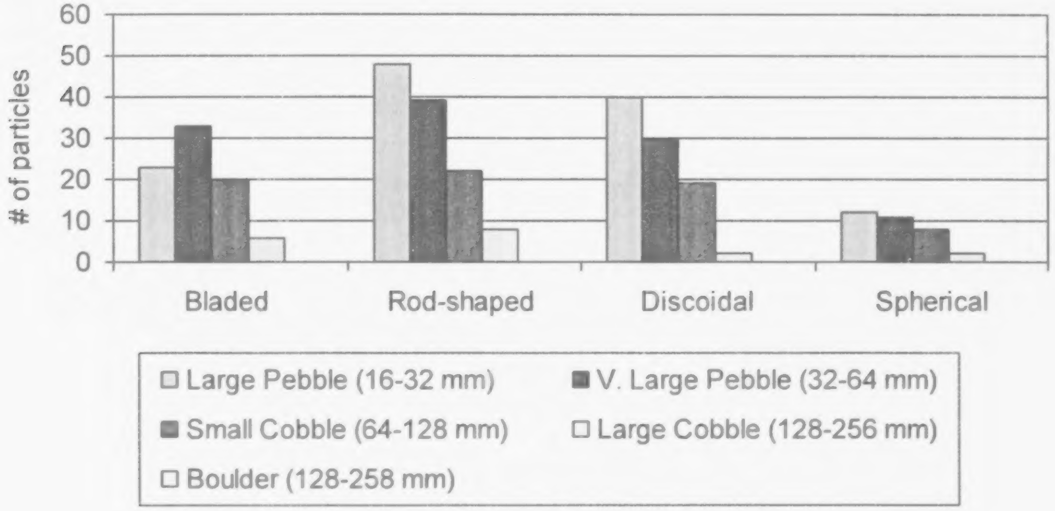


Roundness vs Particle Class Size

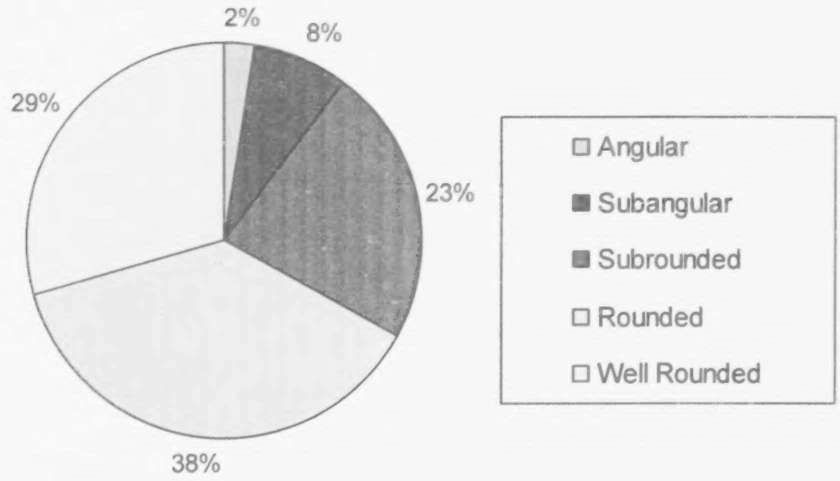
Sample # TW-052-01



Sphericity vs Particle Class Size

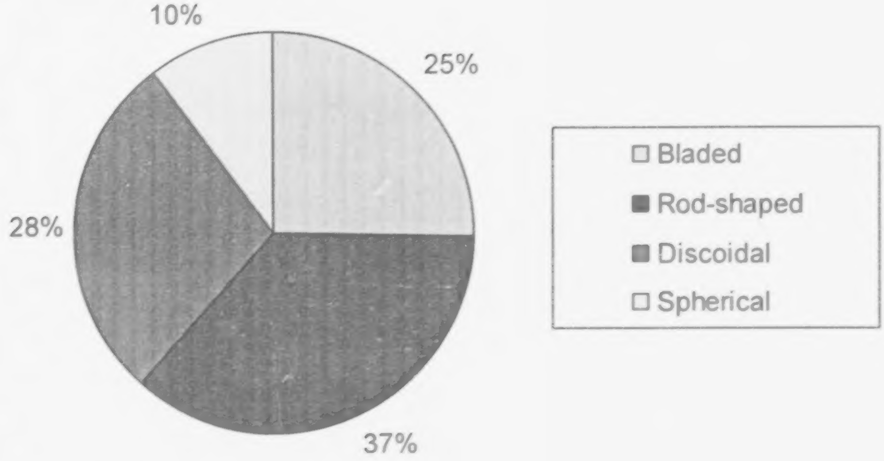


Average Roundness



Average = 0.73 (Rounded to Well Rounded)
Standard deviation = 0.170

Average Sphericity



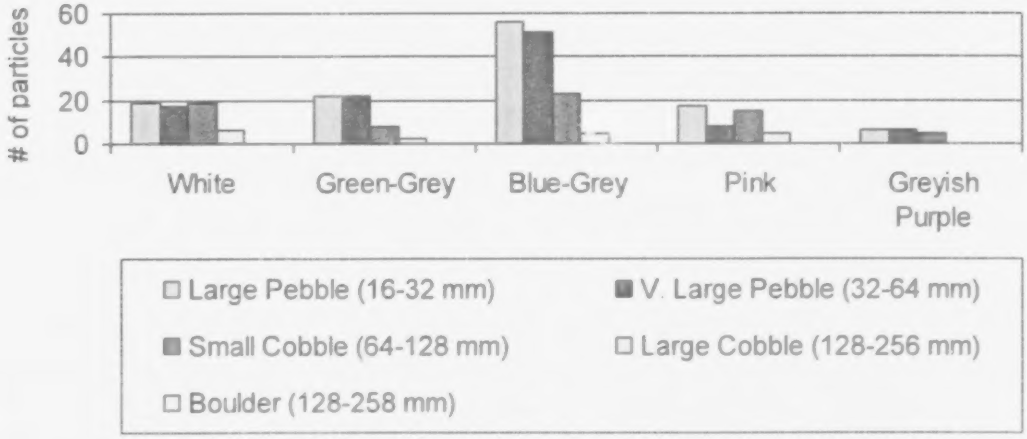
Average = 0.48 (Rod shaped to Discoidal)
Standard deviation = 0.210

Color:

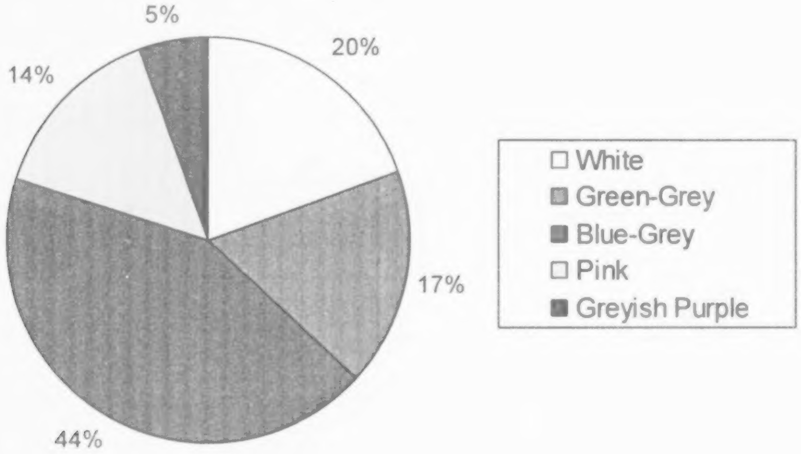
Sample # TW-052-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



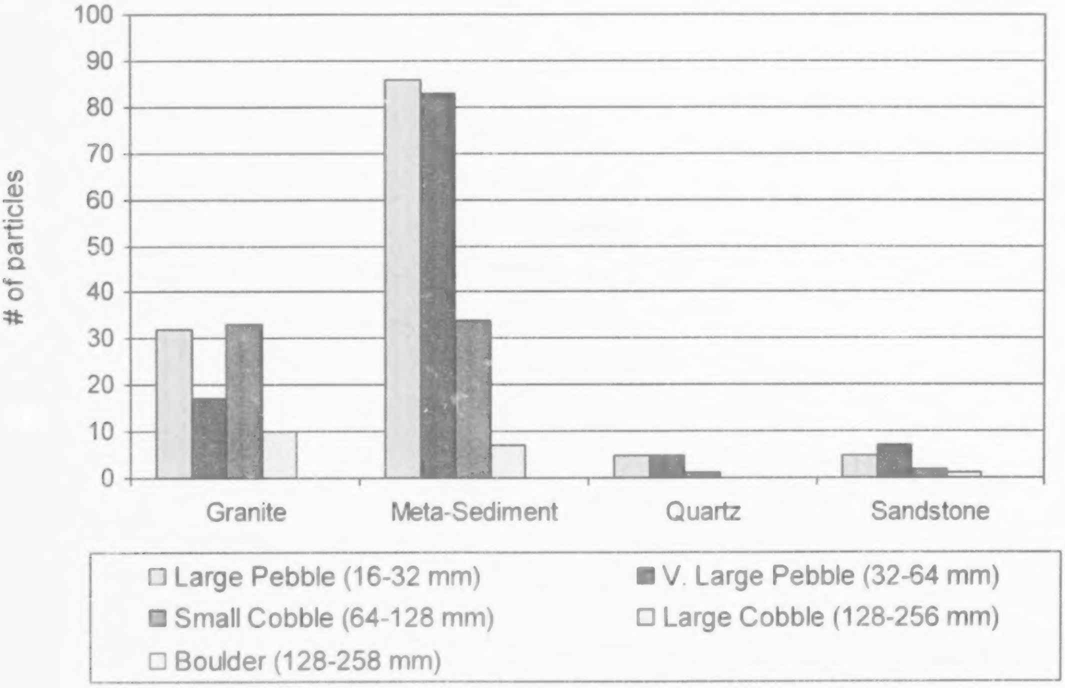
Rock Type:

Number of Different Textural Types

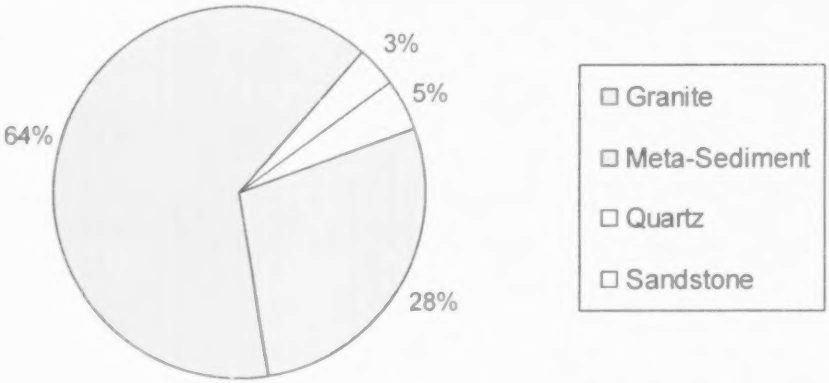
Sample # TW-052-01

Limited (<2)	Several (2-4)	Many (>4)
		X

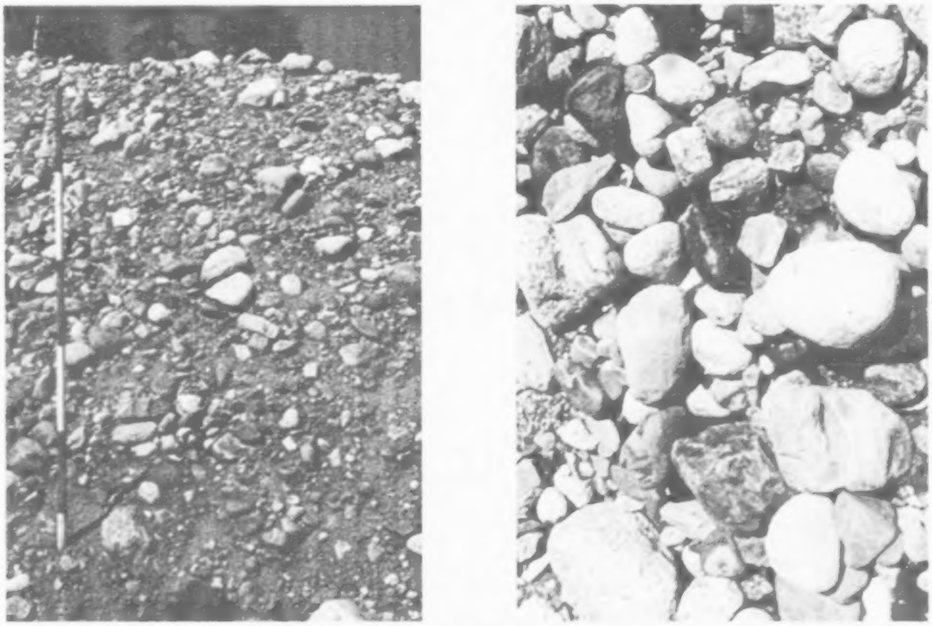
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-052-01



Insitu pit face mix and scree pile of rounded to well rounded, granite and meta-sedimentary rock ranging fro large pebble to large cobble from a large active pit near McDougall Lake, central part of Charlotte County, southwestern New Brunswick.

Comments: A very large resource with an excellent mix of rounded to well rounded, large pebble to large cobble displaying a wide range of color and textural contrast. A moderate to high development potential (75%) as a source of decorative material (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: McDougall Lake-Watty Brook

Sample #: TW-053-01 **Year:** 2001

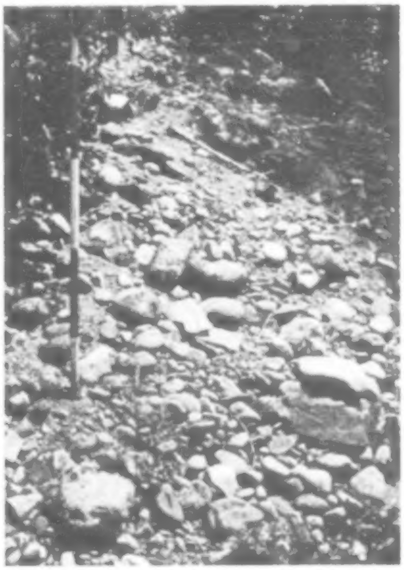
Location: NTS: 21 G/07 County: York

Latitude: 45° 20.825" Longitude: 66° 45.501"

Zone: 19 UTM Northing: 5023500 UTM Easting: 675750

Description: A very small abandoned pit (< 1/4 ha), 800 meters east of the southern tip of McDougall Lake, a few meters eats of Hwy# 785 5 to 6 km south of its intersection with the Lepreau Road, near Watty Brook.

Sample # TW-053-01



Comments: Not sampled. A very small abandoned pit with large pebble to cobble material similar to that near McDougall Lake, sample site TW-052-01. Part of what appears to be a very large resource that may rate as having moderate to high potential (?) for decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lee Settlement

Sample #: TW-054-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 217.124" Longitude: 66° 45.111"

Zone: 19 UTM Northing: 5016800 UTM Easting: 676350

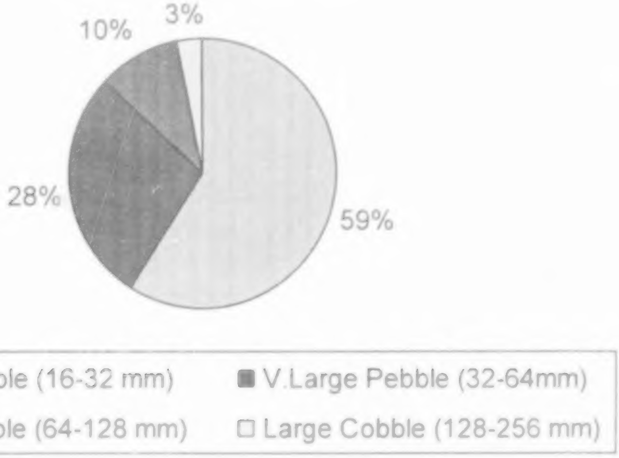
Description: A small (1.5 ha) inactive pit, 400 m west of Hwy # 785 and 400 m north of the Hwy # 785 - Anthony Lake Road intersection.

Particle Size Classification:

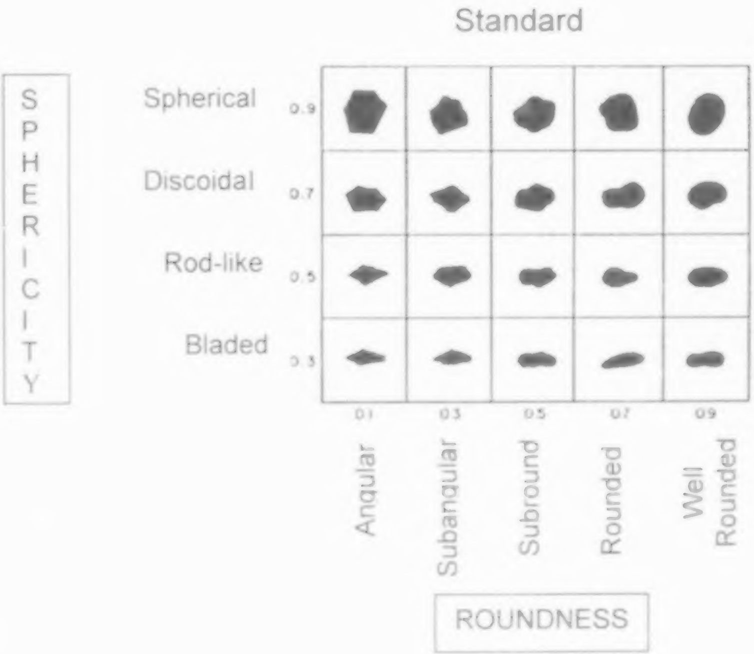
Pit–run Material

41 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

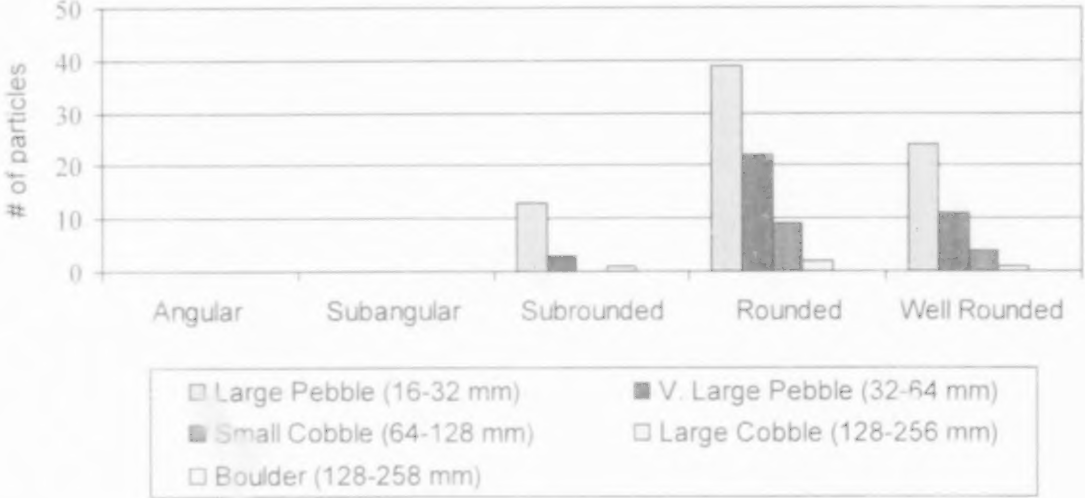


Roundness and Sphericity:

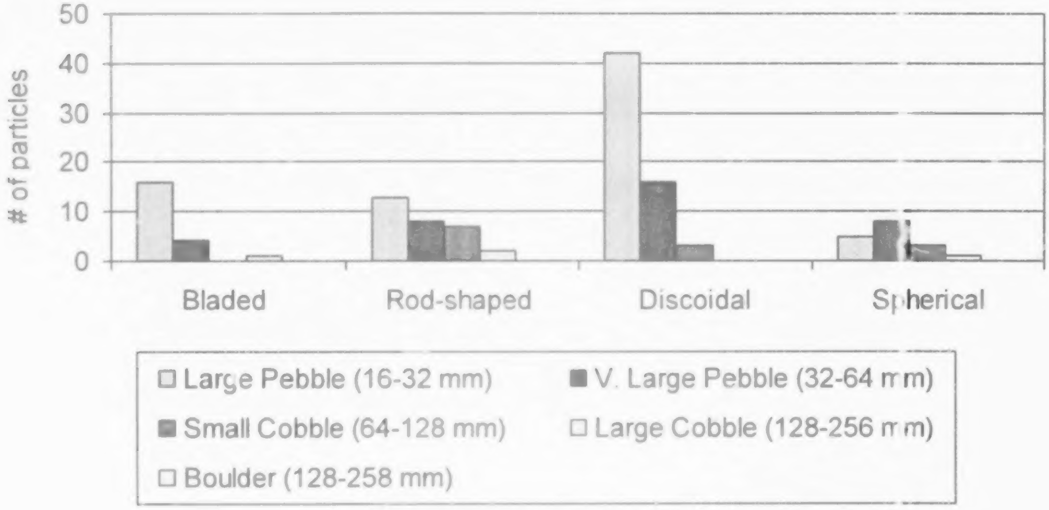


Roundness vs Particle Class Size

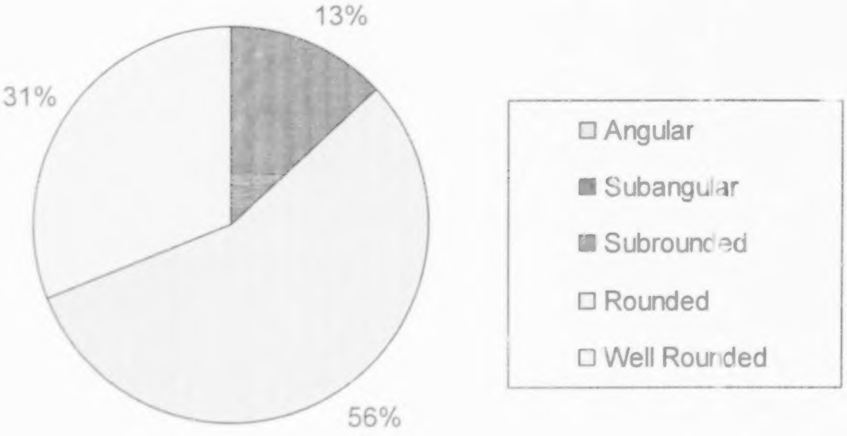
Sample # TW-054-01



Sphericity vs Particle Class Size

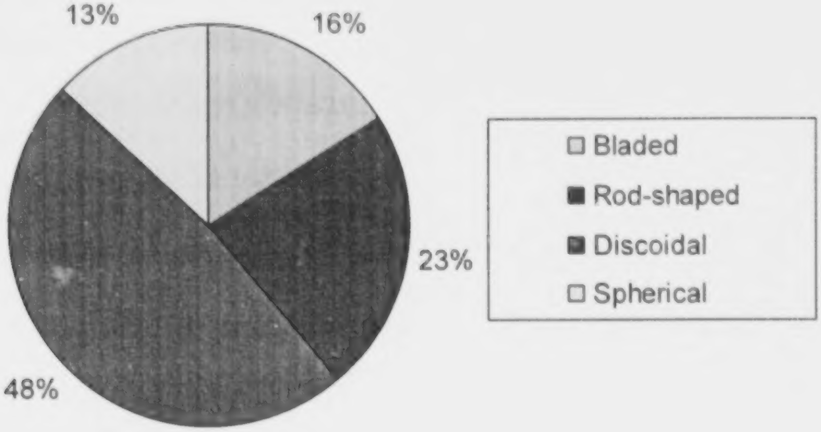


Average Roundness



Average = 0.73 (Rounded to Well Rounded)
Standard deviation = 0.131

Average Sphericity



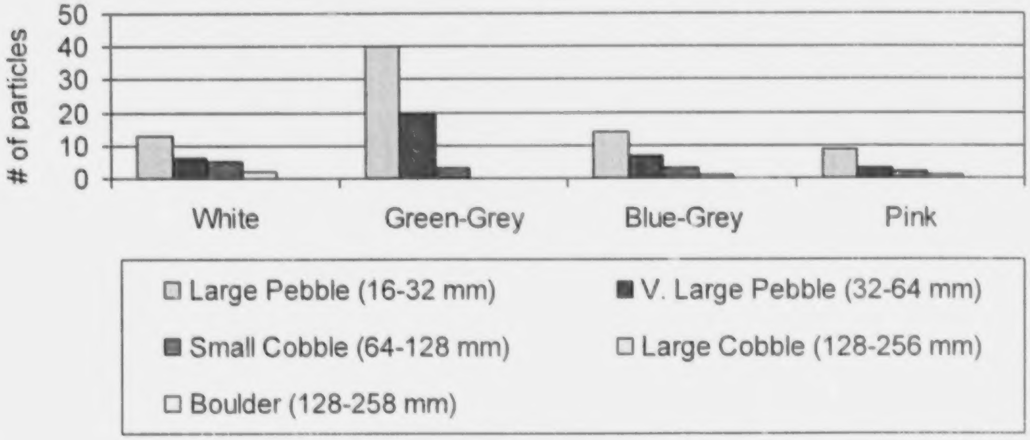
Average = 0.62 (Discoidal to Rod shaped)
Standard deviation = 0.188

Color:

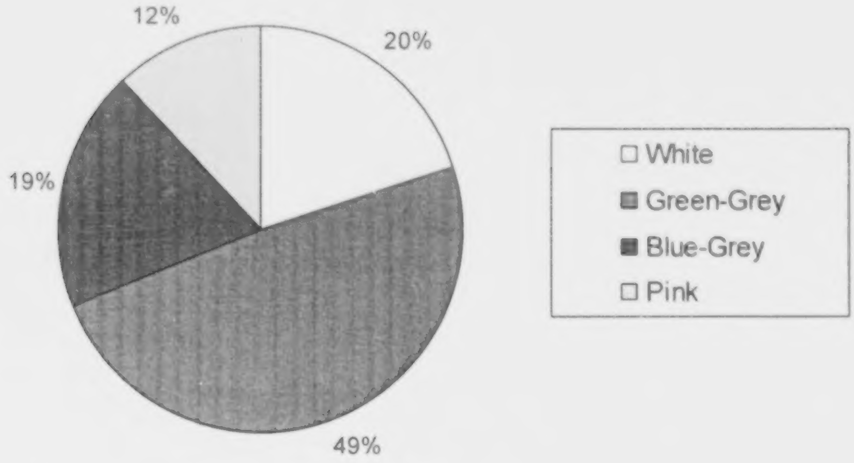
Sample # TW-054-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



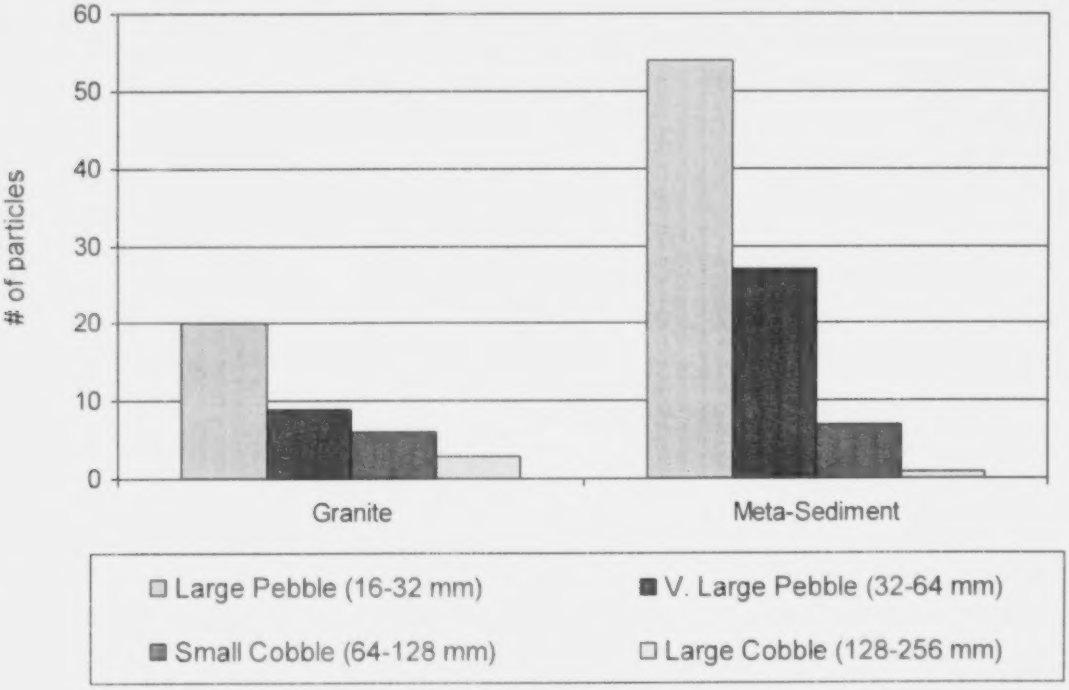
Rock Type:

Number of Different Textural Types

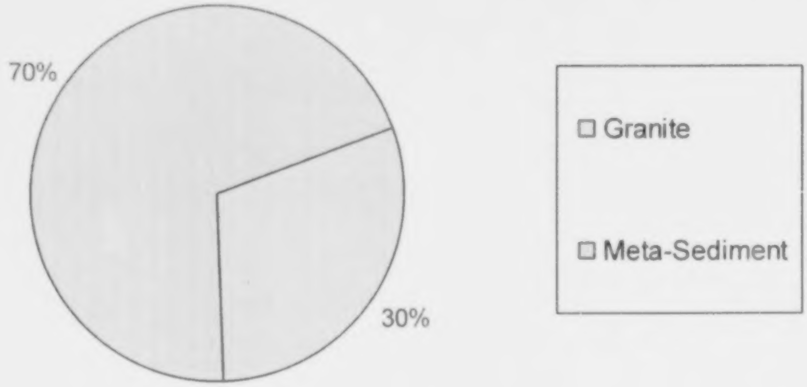
Sample # TW-054-01

Limited (<2)	Several (2-4)	Many (>4)
X		

Rock Type vs Particle Class Size



Average Rock Type Distribution



Comments: A small shallow pit, partly reclaimed and adjacent a tree plantation. Over half of the sampled material was large pebble with limited cobble consisting of rounded, green-grey, white to pink meta-sediment and granite respectively. Rated at high to moderate development potential (78%) for pebbly and finer decorative material (see Appendix D).

Sample # TW-054-01

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lee Settlement-Pipeline (south)

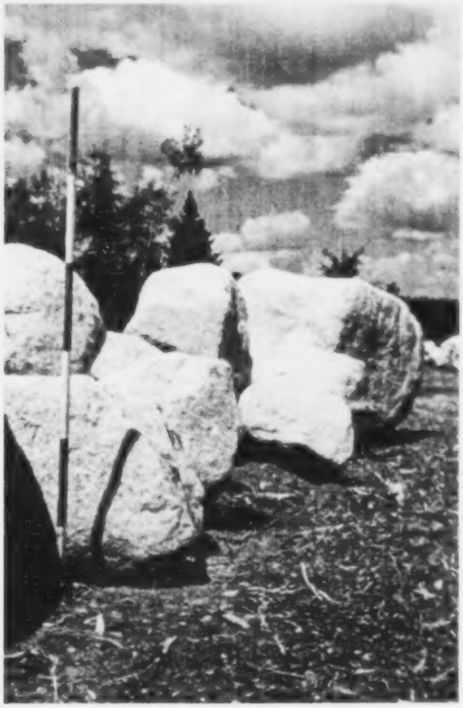
Sample #: TW-055-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 17.110" Longitude: 66° 46.829"

Zone: 19 UTM Northing: 5017800 UTM Easting: 674050

Description: Located at the intersection of the natural gas pipeline and the Lee Settlement Road (1st crossing), 2.5 km west of its intersection with Hwy # 785.



Comment: Over 100 pinkish white, megacrystic granite (Magaguadavic Granite) boulders in various sizes up to 3x3x2 meters, excavated and stock piled adjacent natural gas pipeline. Access to pipeline right-of-way would require approval of pipeline officials.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lee Settlement-Pipeline (north)

Sample #: TW-056-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 17.736" Longitude: 66° 47.510"

Zone: 19 UTM Northing: 5018000 UTM Easting: 673150

Description: Located at the intersection of the natural gas pipeline and the Lee Settlement Road (2nd crossing), 4.8 km west of its intersection with Hwy # 785.

Comment: Hundreds of pinkish white, megacrystic granite (Magaguadavic Granite) boulders of various sizes (up to several meters across), excavated during pipeline construction and piled in a windrow up to 3 m high, 5-8 m wide, extending several hundred meters. Access to pipeline right-of way would require approval of pipeline officials.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Lee Settlement-McDougall Lake (west)

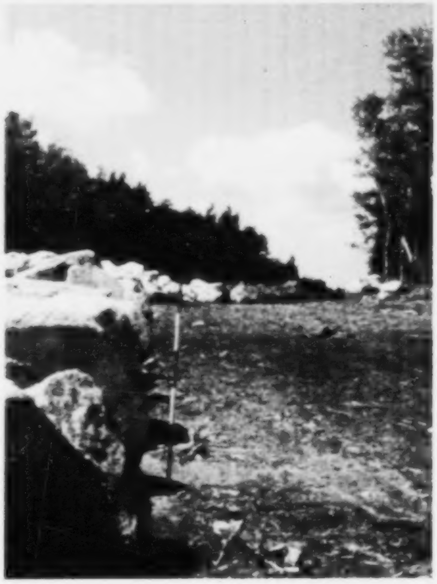
Sample #: TW-057-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 17.427" Longitude: 66° 47.971"

Zone: 19 UTM Northing: 5018850 UTM Easting: 672600

Description: Located adjacent the natural gas pipeline and the Lee Settlement Road, 5.5 km west of its intersection with Hwy # 785 and 2.5 km west of McDougall Lake.



Comment: Hundreds of pinkish white, megacrystic granite (Magaguadavic Granite) 2-4 tonne boulders of various sizes (up to several meters across), excavated during pipeline construction and piled adjacent the natural gas pipeline in a windrow up to 3 m high, 5 to 8 m wide, extending several hundred meters. Access to pipeline right-of-way would require approval of pipeline officials.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Seely Lake

Sample #: TW-058-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 18.590" Longitude: 66° 44.358"

Zone: 19 UTM Northing: 5020500 UTM Easting: 676750

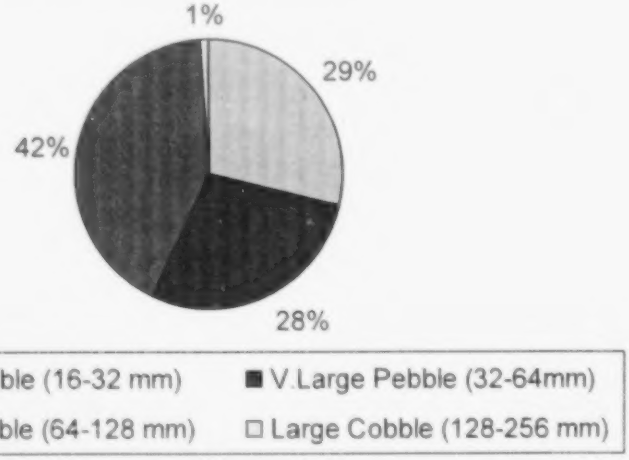
Description: A large (1-2 ha) active pit, south and adjacent the Seely Lake Road, 750 m east of its intersection with Hwy # 785.

Particle Size Classification:

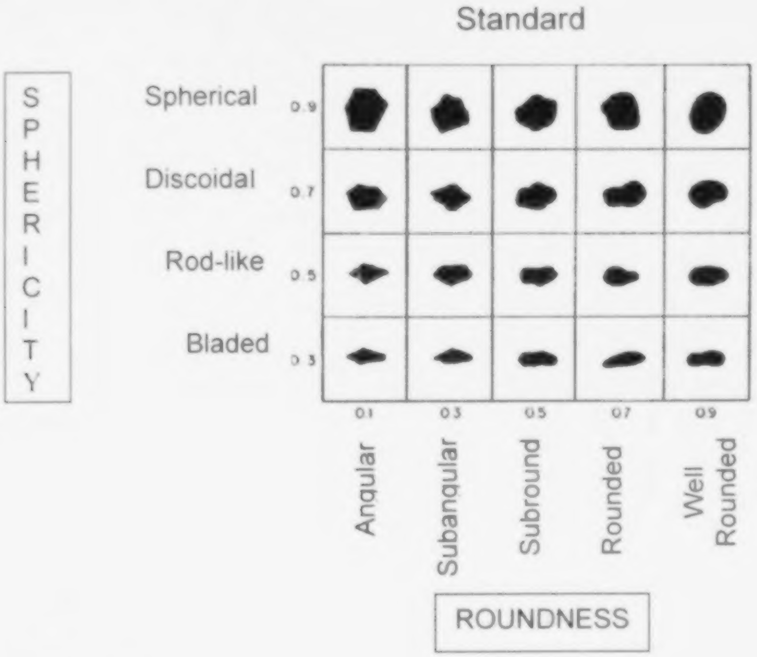
Pit–run Material

28 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**72 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm material

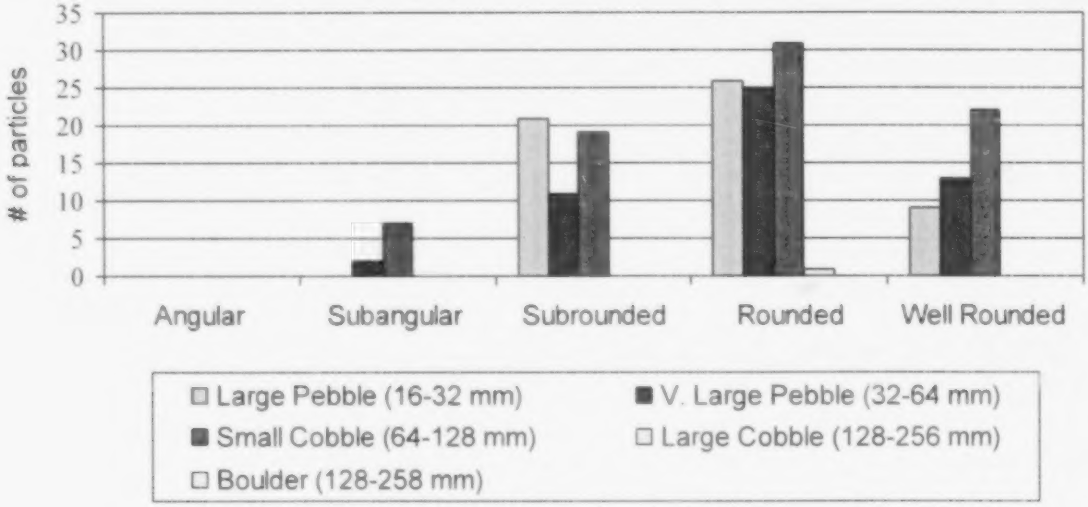


Roundness and Sphericity:

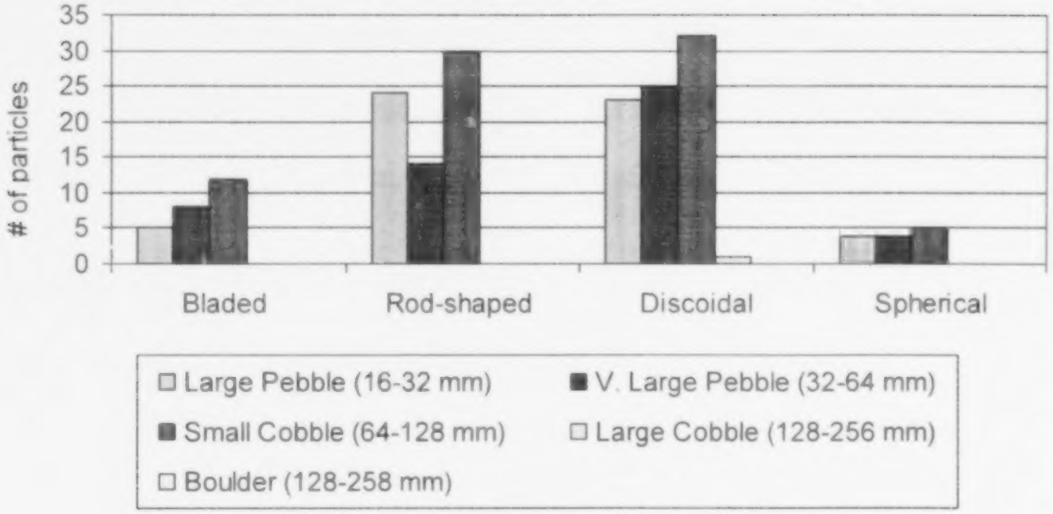


Roundness vs Particle Class Size

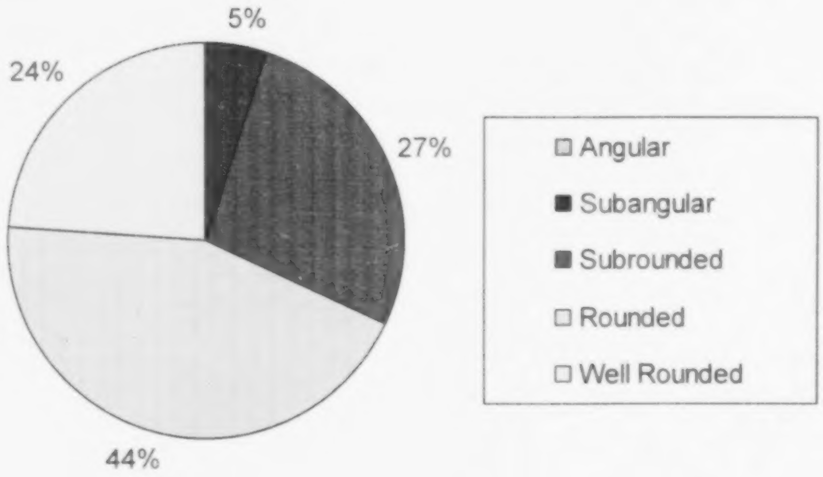
Sample # TW-058-01



Sphericity vs Particle Class Size

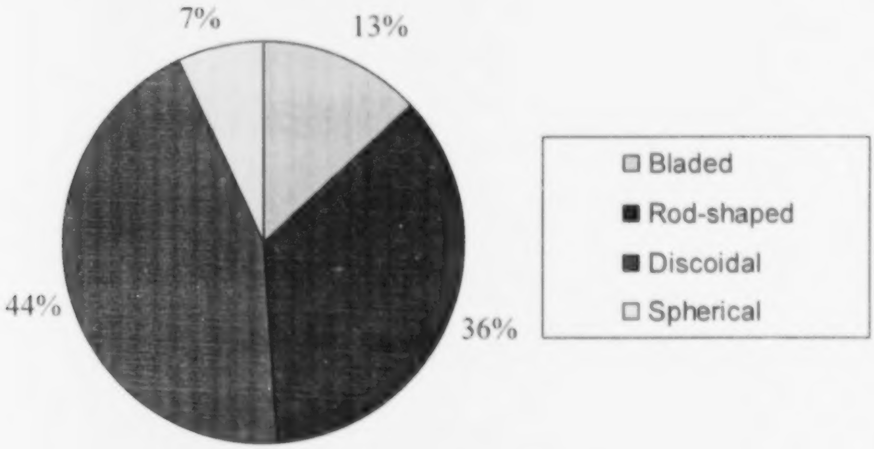


Average Roundness



Average = 0.73 (Rounded to Well Rounded)
Standard deviation = 0.131

Average Sphericity



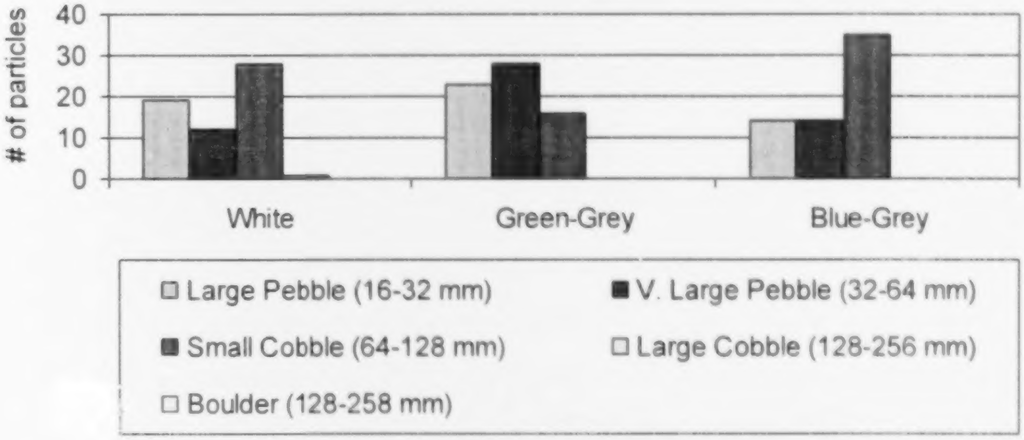
Average = 0.62 (Discoidal to Rod-shaped)
Standard deviation = 0.188

Color:

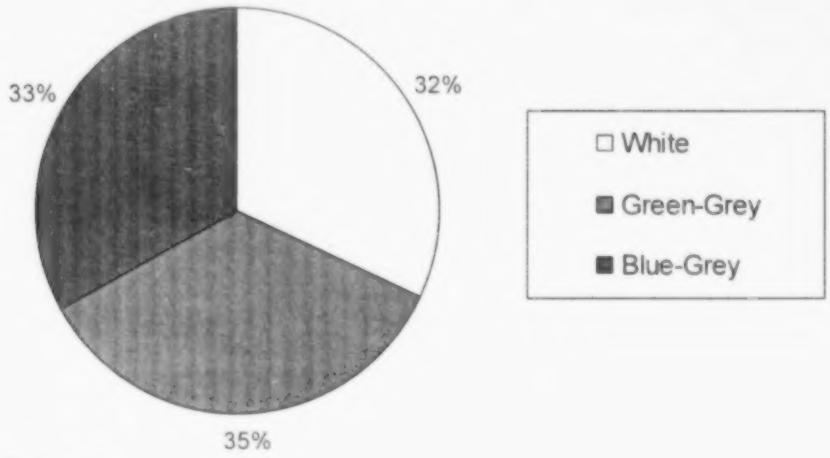
Sample # TW-058-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



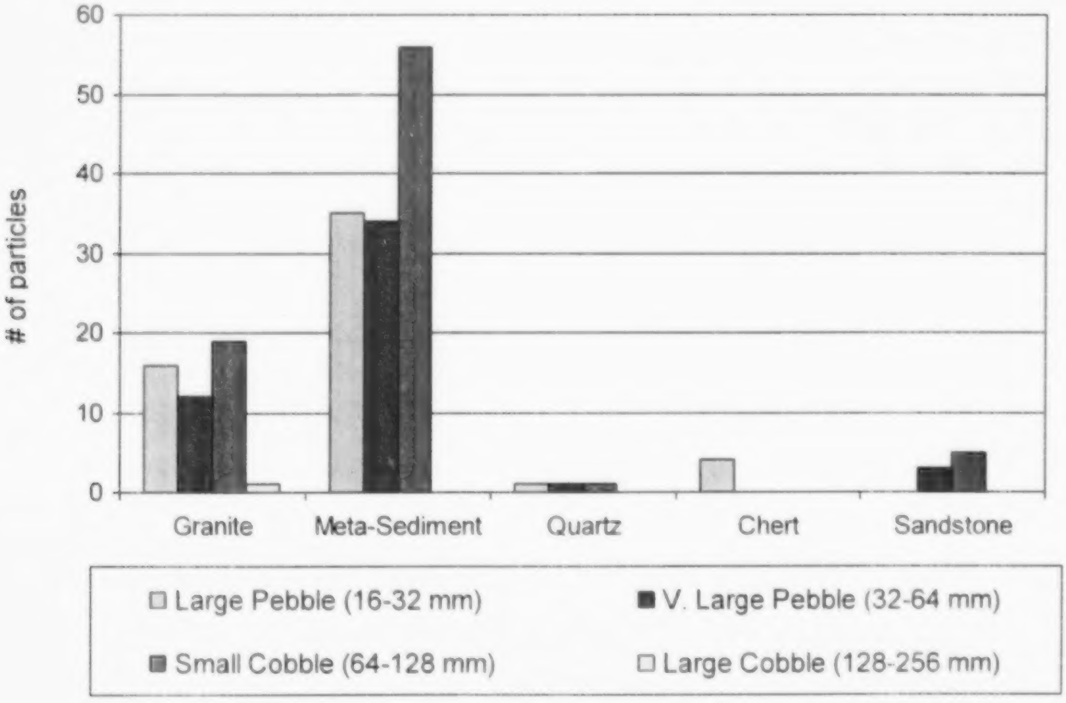
Rock Type:

Number of Different Textural Types

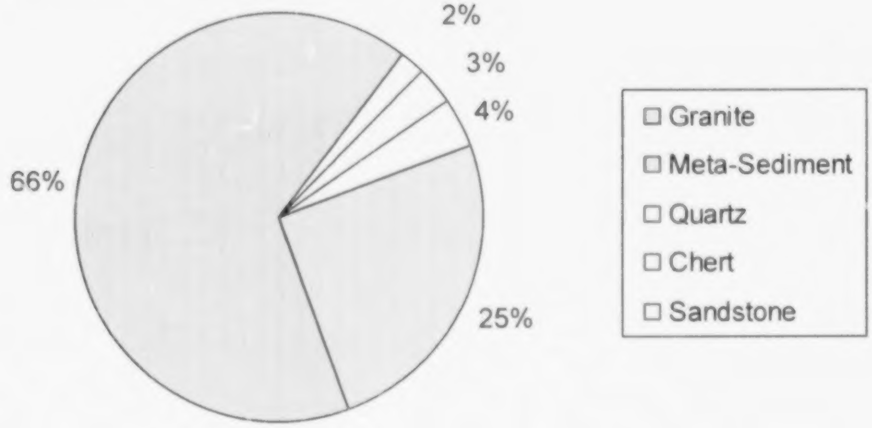
Sample # TW-058-01

Limited (<2)	Several (2-4)	Many (>4)
		X

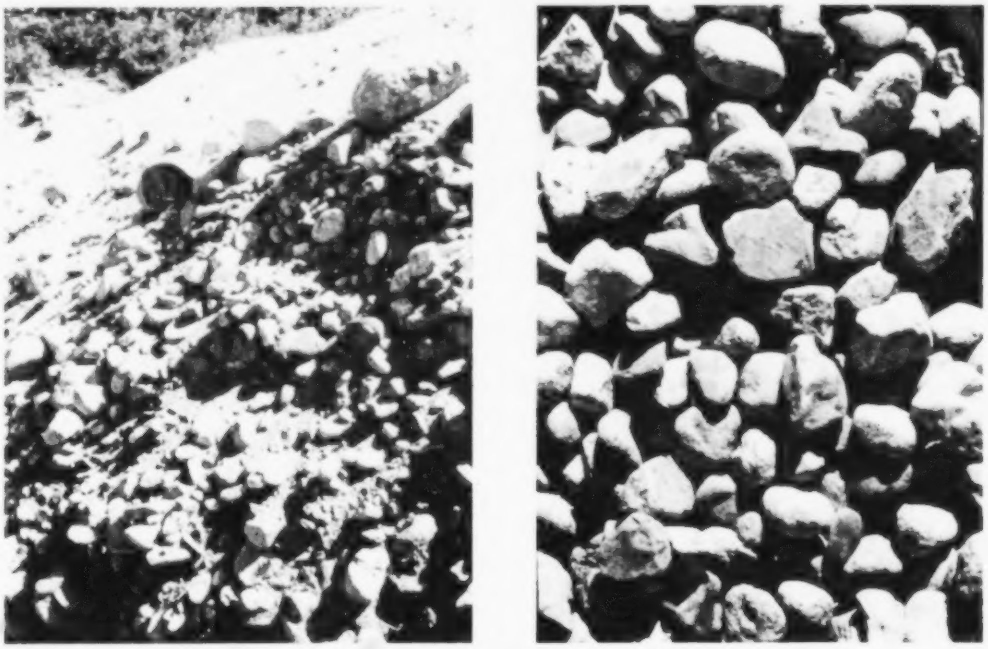
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-058-01



Typical lense of cobbly material and associated scree pile of grey, rounded, granite and meta-sediment, near Seely Lake, central part of Charlotte County, southwestern New Brunswick.

Comments: This resource typically consists of sand and gravel with local lenses of pebble to cobble-size material. Sampled material represents coarser materials, consisting of a large proportion of rounded, cobbles lacking significant color contrast (i.e. mostly grey to white). Resource is rated at moderate to high potential (73%) for cobbly material however it appears to be restricted to small lenses within a deposit dominated by sand and gravel (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Anthony Lake

Sample #: TW-060-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 18.590" Longitude: 66° 44.358"

Zone: 19 UTM Northing: 5020500 UTM Easting: 676750

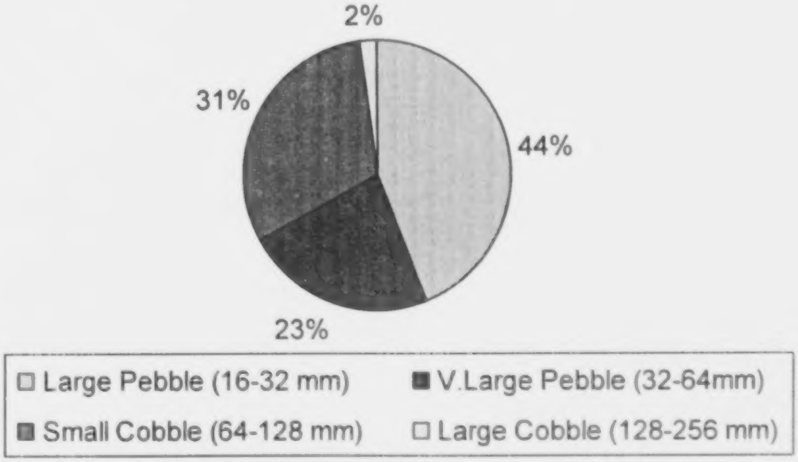
Description: A small active pit, south and adjacent the Anthony Lake Road, 1.5 m east of its intersection with Hwy # 785.

Particle Size Classification:

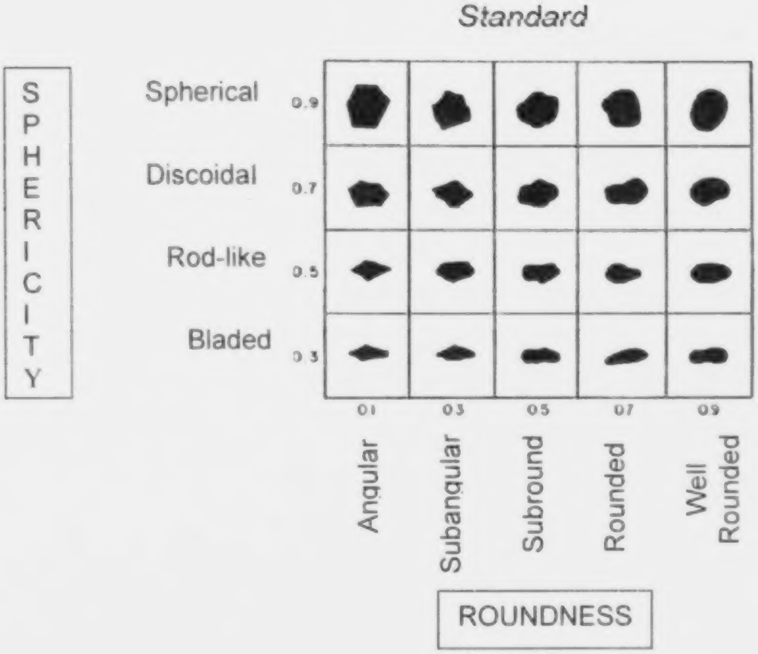
Pit–run Material

39 % clay, sand and small pebble (i.e.<25.4 mm or <1")	**61 %** medium to very large pebble and cobble (i.e. > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

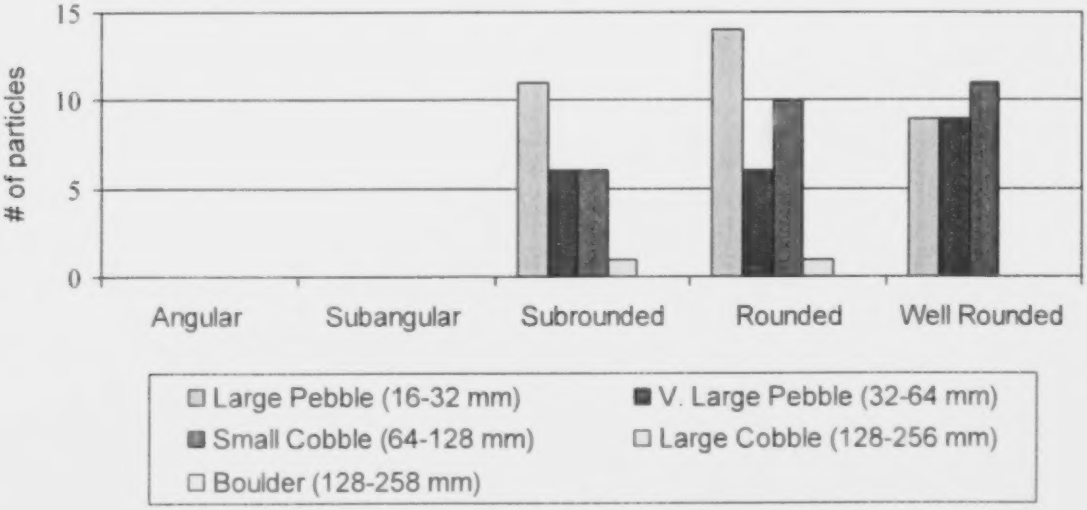


Roundness and Sphericity:

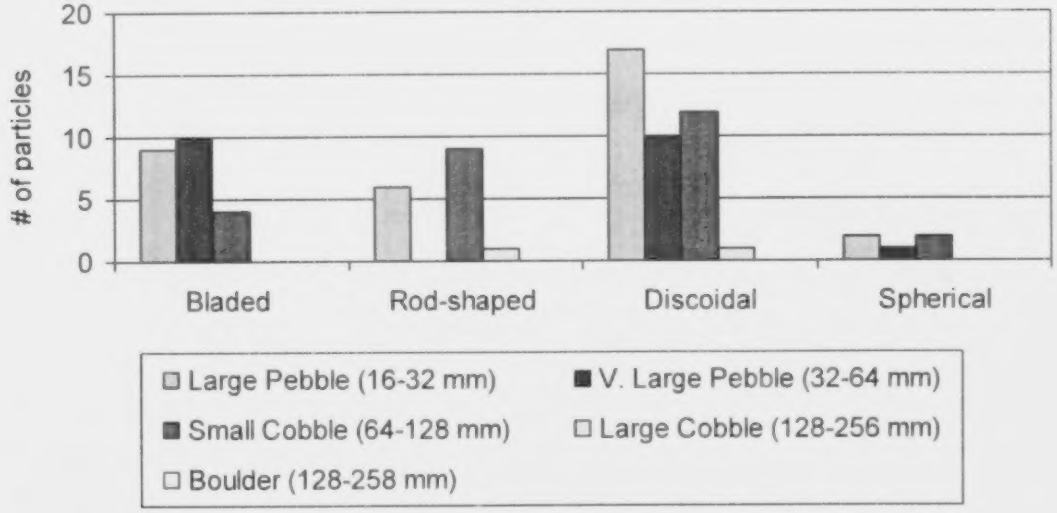


Roundness vs Particle Class Size

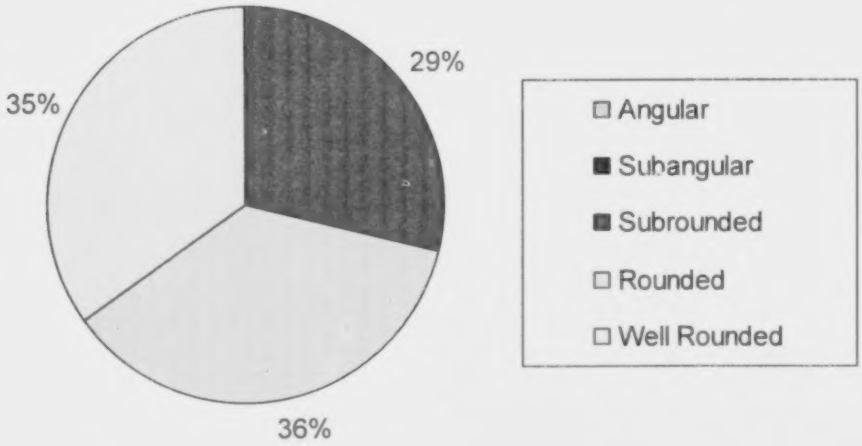
Sample # TW-060-01



Sphericity vs Particle Class Size

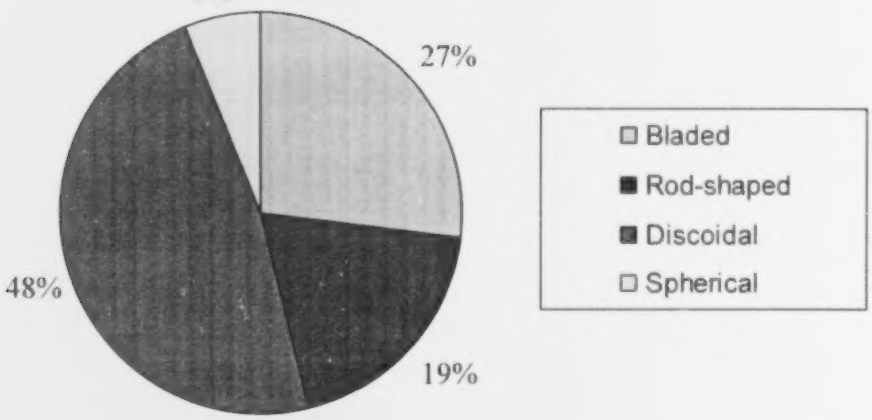


Average Roundness



Average = 0.71 (Well Rounded to Rounded)
Standard deviation = 0.159

Average Sphericity



Average = 0.56 (Discoidal to Bladed)
Standard deviation = 0.189

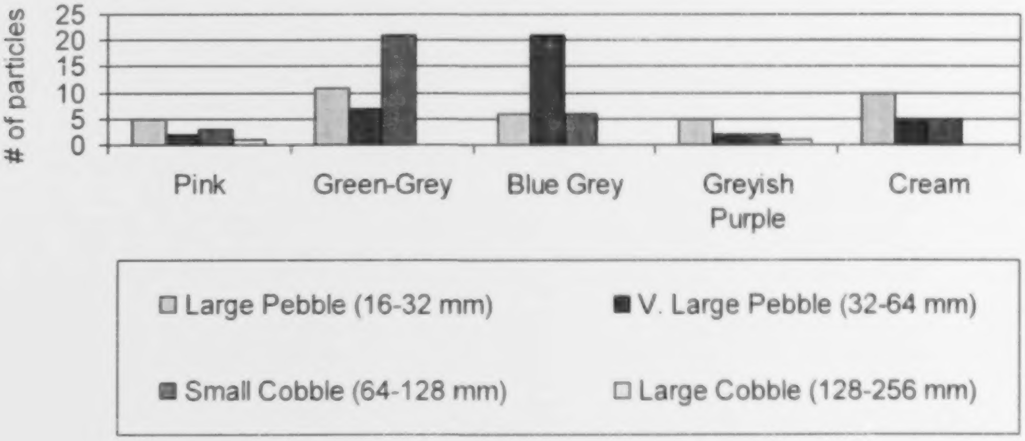
Color:

Sample # TW-060-01

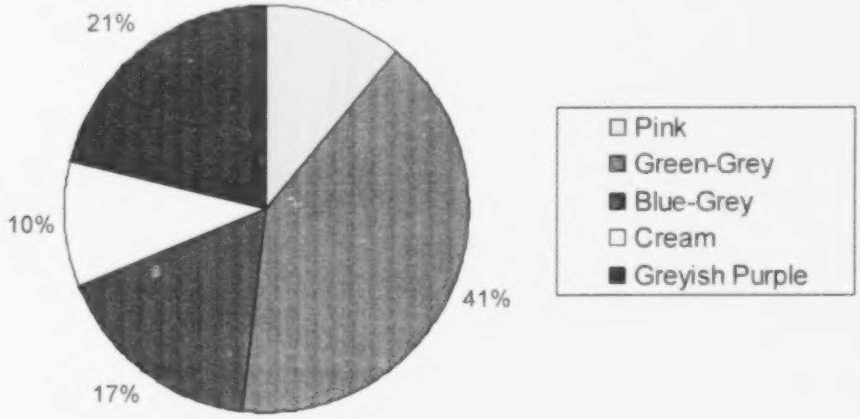
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution

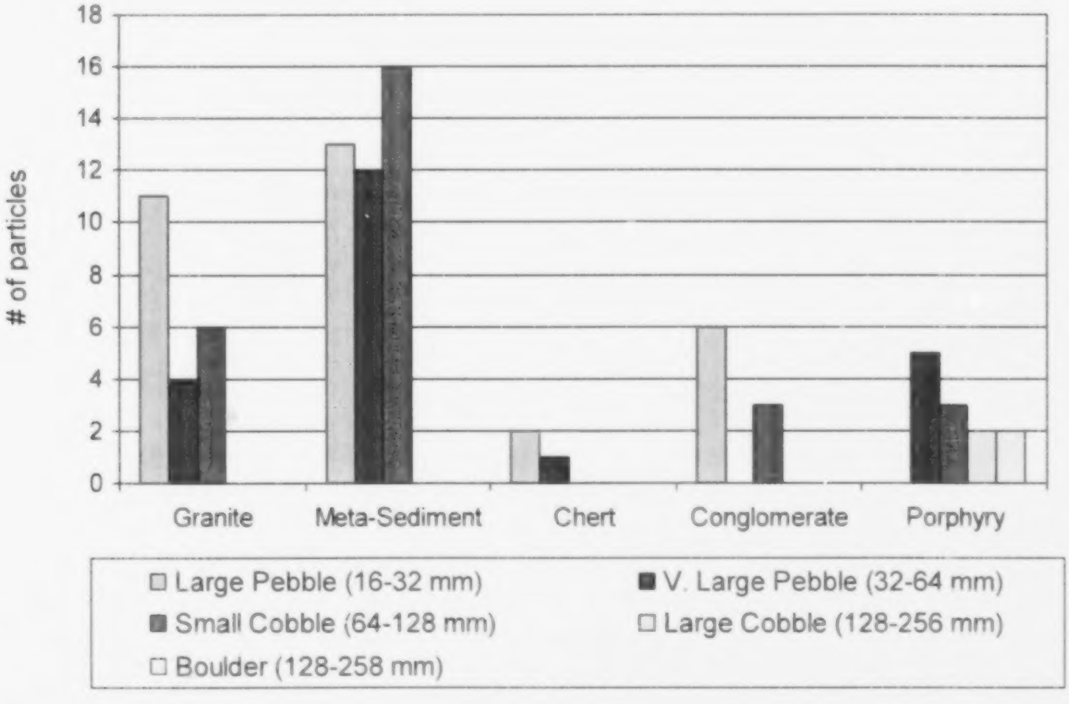


Rock Type:

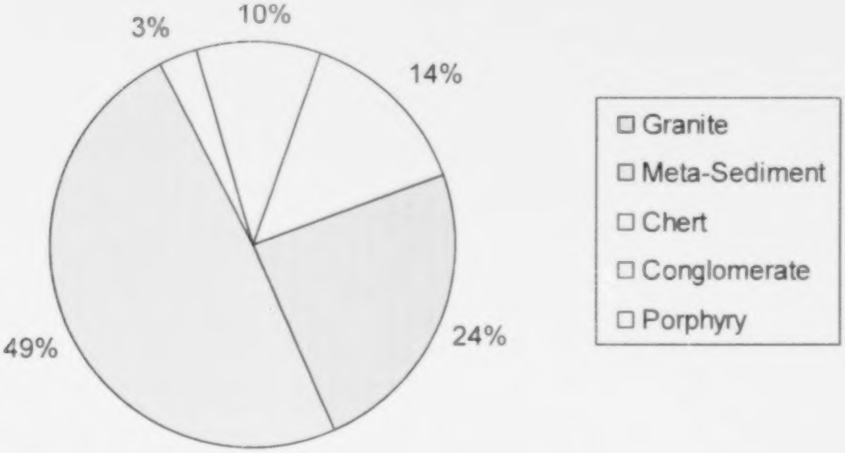
Number of Different Textural Types

Sample # TW-060-01	Limited (<2)	Several (2-4)	Many (>4)
			X

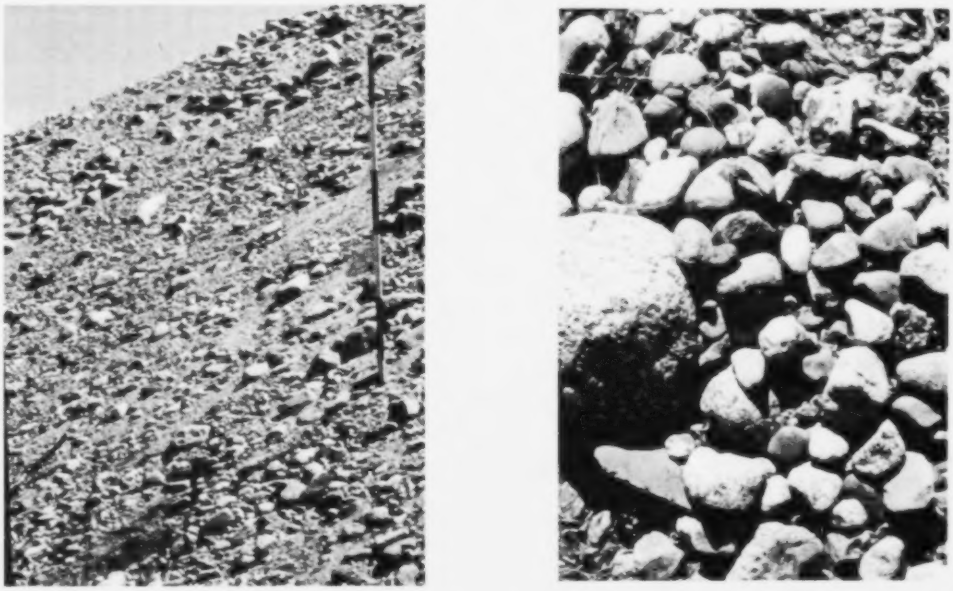
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample #TW-060-01



Pit face and associated scree pile of well rounded, large pebble to small cobbles of meta-sedimentary rock, granite and porphyry, north of Anthony Lake, central part of Charlotte County. New Brunswick.

Comments: Very cobbly material with numerous boulders at this site. Quality appears generally good, with a large percentage of well rounded, very large pebbles and small cobbles of meta-sedimentary rock and granite. Many contrasting colors and textures represented. Resource may be limited as there is bedrock exposed nearby. Material is rated at moderate to high development potential for decorative purposes (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Cranberry Lake (north)

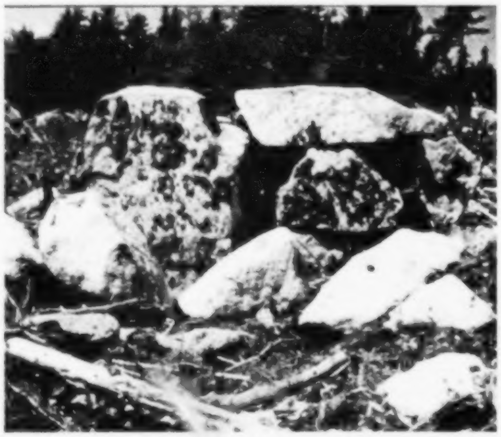
Sample #: TW-063-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 16.868" Longitude: 66° 42.639"

Zone: 19 UTM Northing: 5026500 UTM Easting: 685350

Description: Boulder field of pink to buff medium-grained biotite granite (Mount Douglas Granite) located a few hundred meters north of the Lepreau Road, about 11km east of its intersection with Highway #785.



Comment: Many small to large granite boulders in a recent cut-over area adjacent the Lepreau Road. Removal could assist future silviculture activities.

New Brunswick Crown Land Pebble, Cobble, and Boulder Survey

Site Name: Victoria Lake

Sample #: TW-068-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 20.091" Longitude: 66° 38.455"

Zone: 19 UTM Northing: 5022500 UTM Easting: 684900

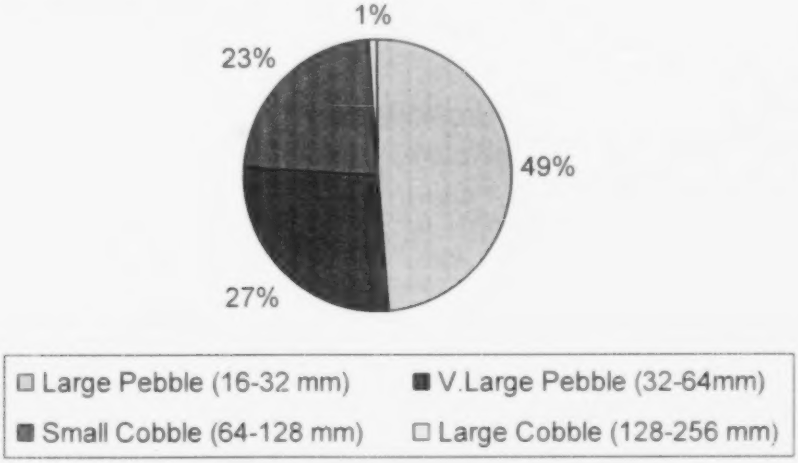
Description: A large (2-4 ha), active pit, 600 m west of Victoria Lake Road, adjacent the Victoria Lake Road and approximately 12 km east of the Hwy# 785-Lepreau Road intersection.

Particle Size Classification:

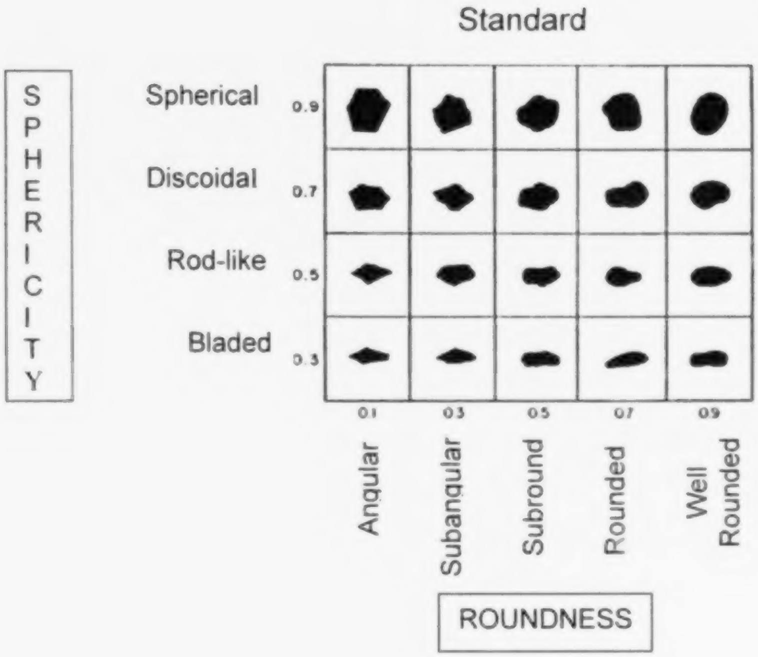
Pit–run Material

39 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**61 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

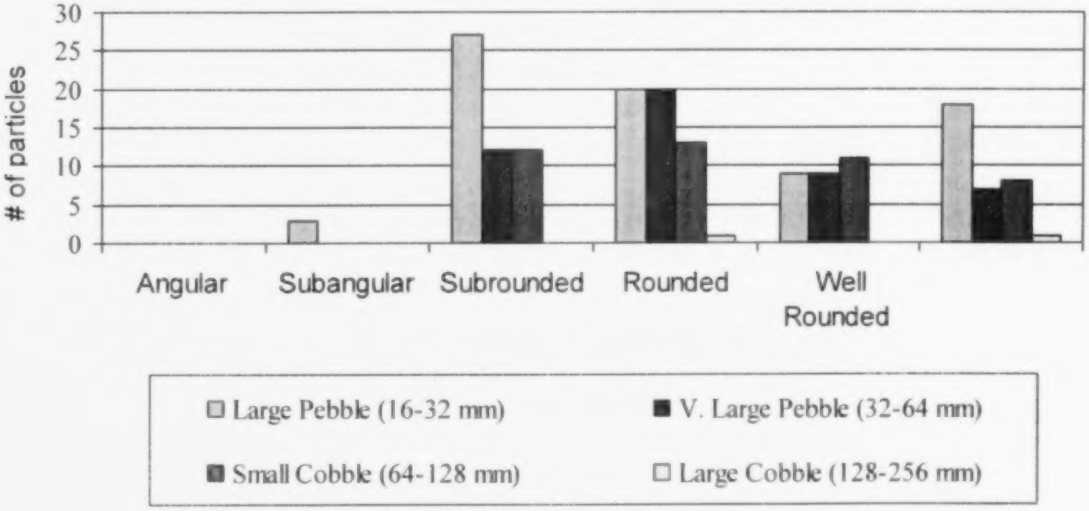


Roundness and Sphericity:

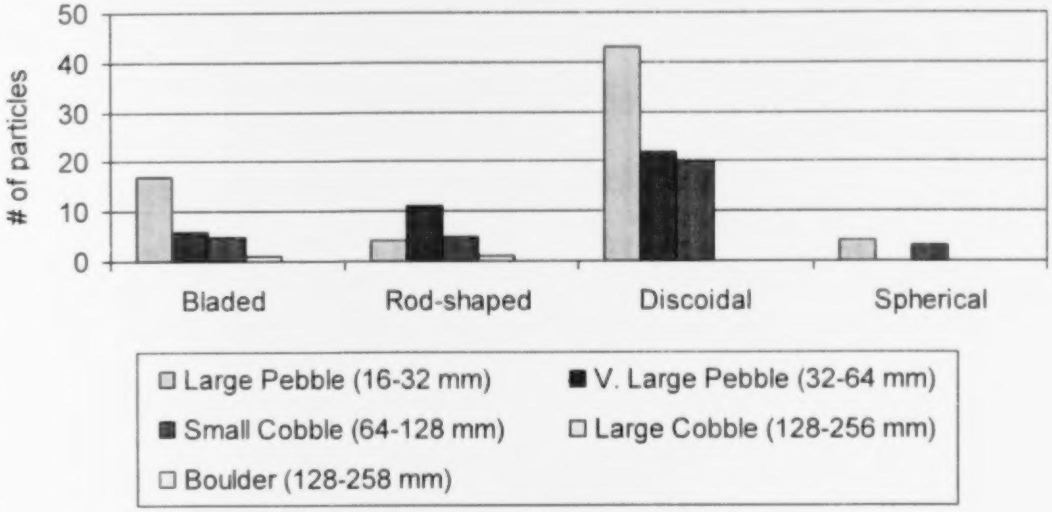


Roundness vs Particle Class Size

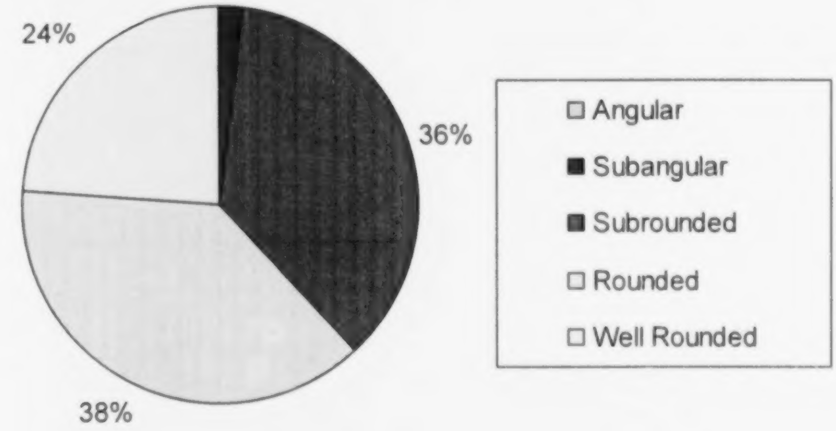
Sample # TW-068-01



Sphericity vs Particle Class Size

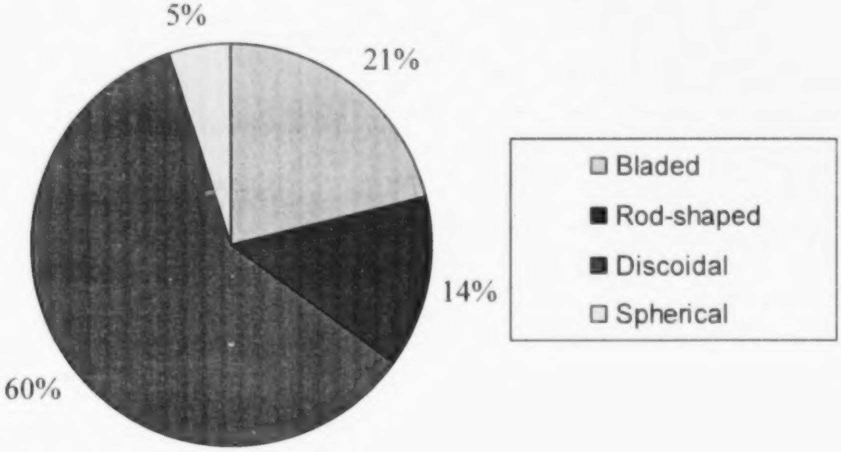


Average Roundness



Average = 0.67 (Subrounded to Rounded)
Standard deviation = 0.164

Average Sphericity



Average = 0.59 (Discoidal)
Standard deviation = 0.179

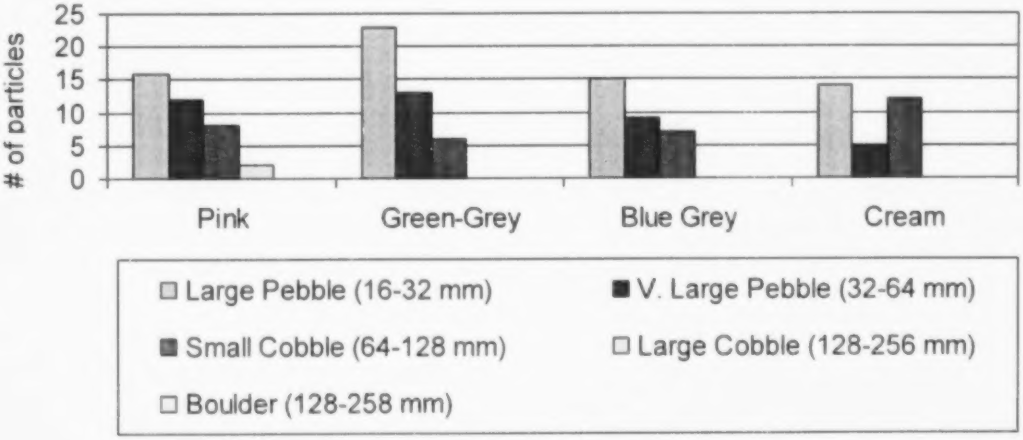
Color:

Sample # TW-068-01

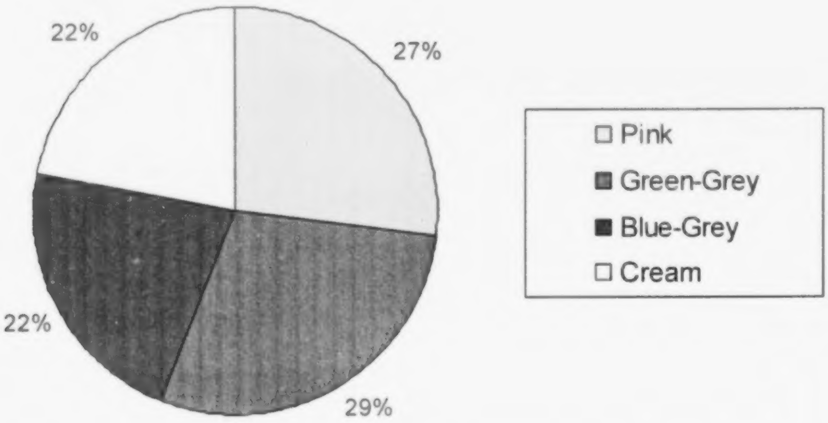
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



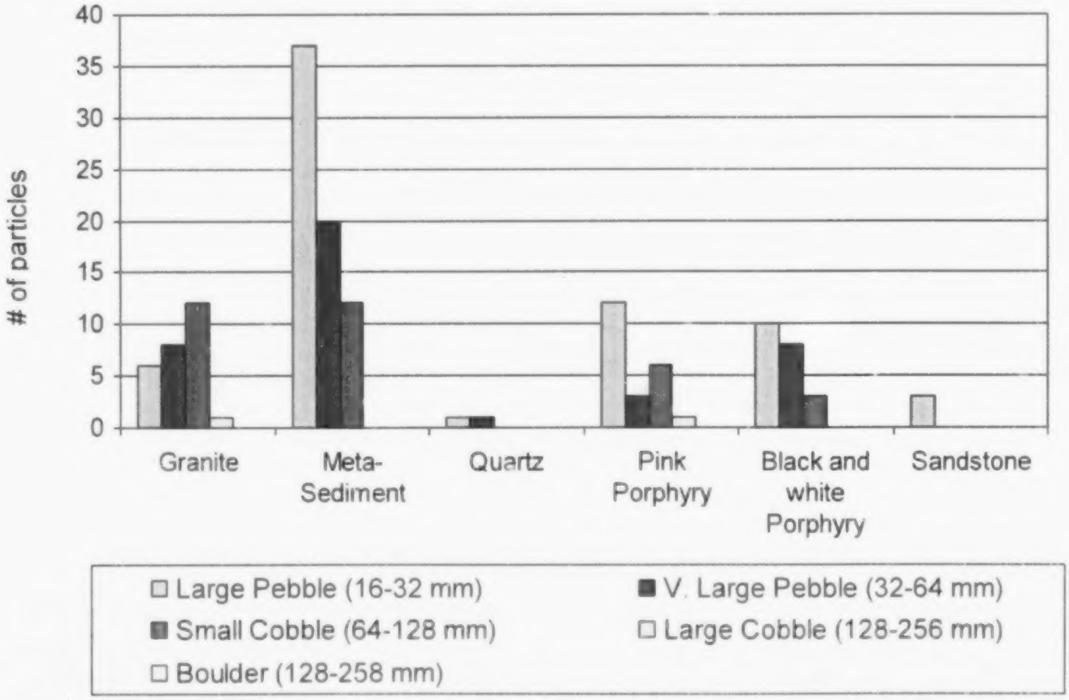
Rock Type:

Number of Different Textural Types

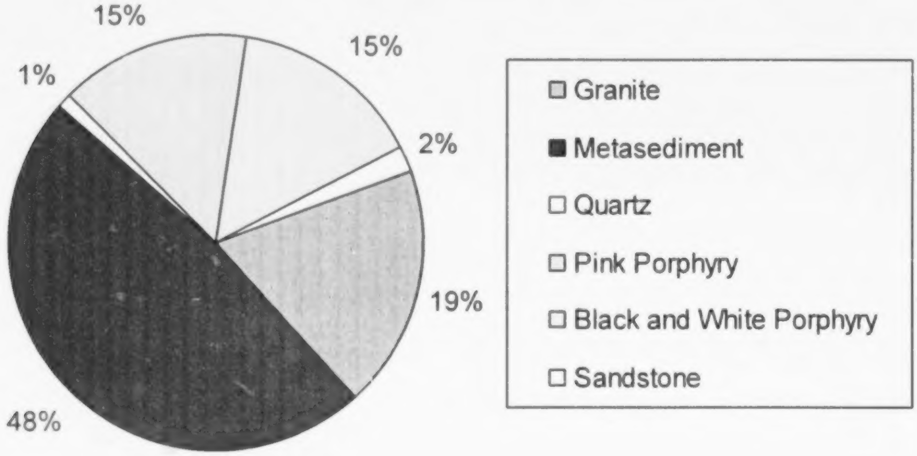
Sample # TW-068-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-068-01

Typical Pit face and scree pile of pebbly to cobbly meta-sediment, granite and porphyry material near Victoria Lake, eastern part of Charlotte County, southwestern New Brunswick.

Comments: A large resource of meta-sedimentary rock, granite and porphyry pebbles, cobbles and some boulders. Appears to be an equal distribution of color (i.e. pink, green-grey, blue-grey and cream) throughout. Almost 75% of sampled material is subrounded to rounded with the balance being well rounded. Potential for decorative rock is moderate to high (66%) (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: North Branch Lepreau River

Sample #: TW-074-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 19.820" Longitude: 66° 31.433"

Zone: 19 UTM Northing: 5022350 UTM Easting: 693900

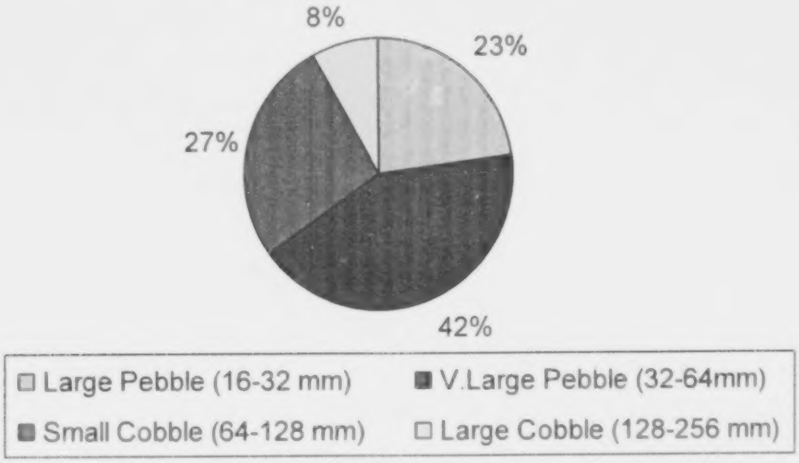
Description: A small (<1 ha), inactive pit, 4 km south of Rocky Lake, 100m east of North Branch of Lepreau River and 20 km east of the intersection of the Lepreau Road and Hwy # 785.

Particle Size Classification:

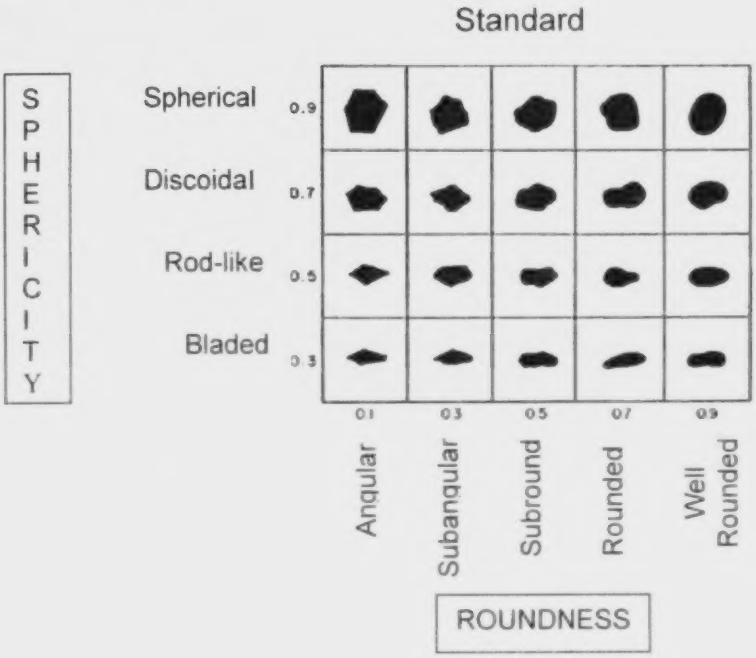
Pit–run Material

8 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**92 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

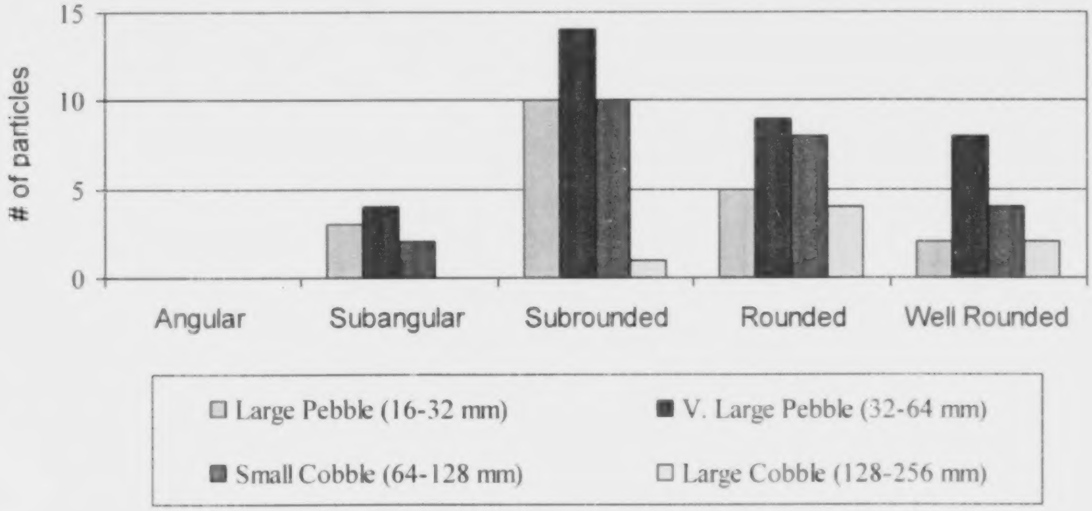


Roundness and Sphericity:

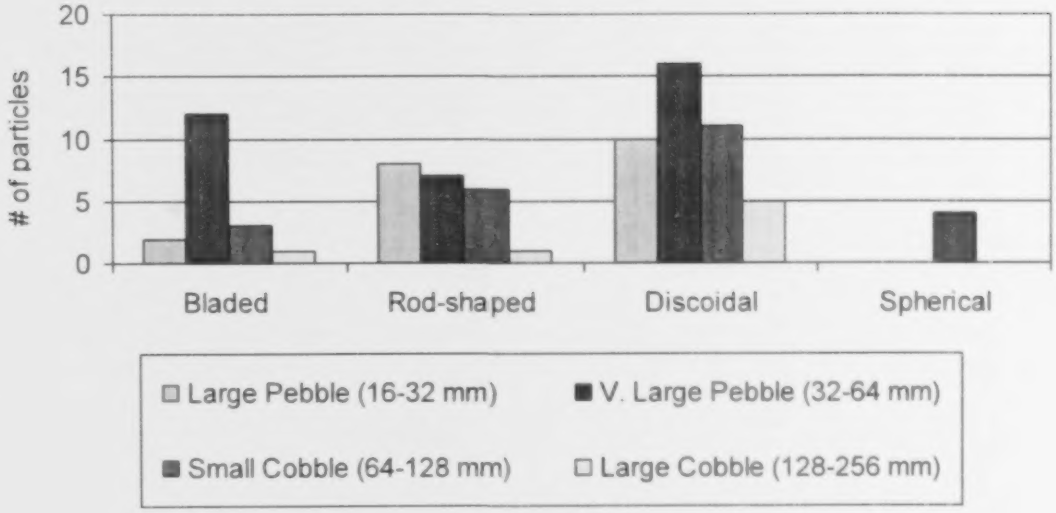


Roundness vs Particle Class Size

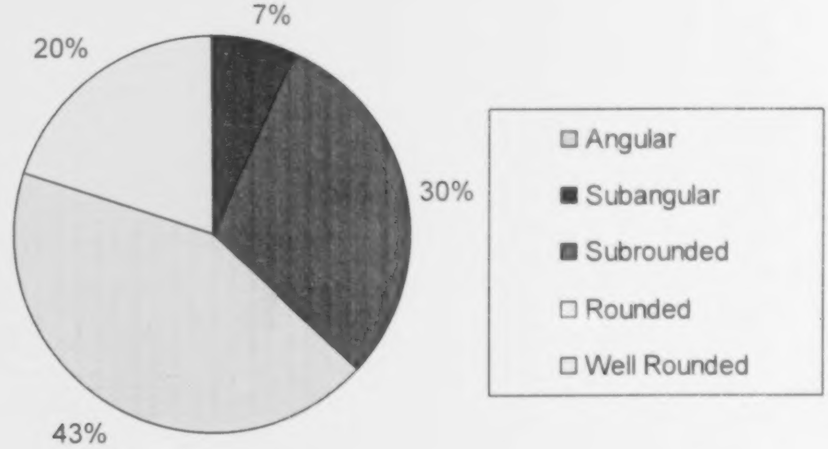
Sample # TW-074-01



Sphericity vs Particle Class Size

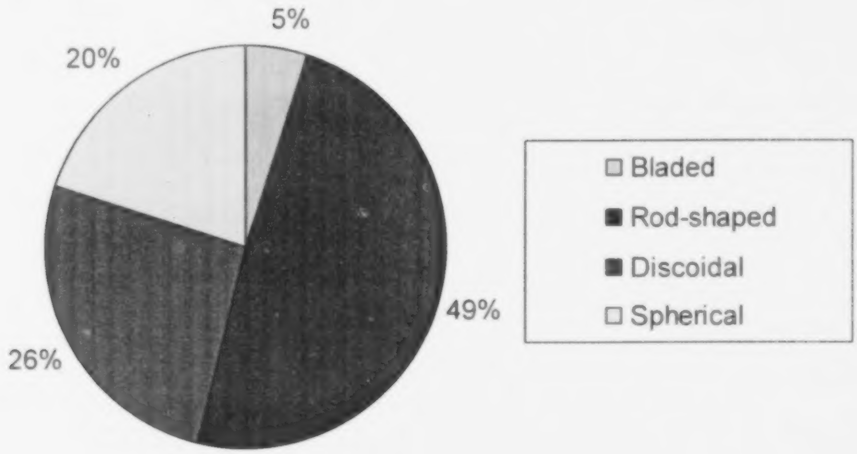


Average Roundness



Average = 0.61 (Rounded to Subrounded)
Standard deviation = 0.184

Average Sphericity



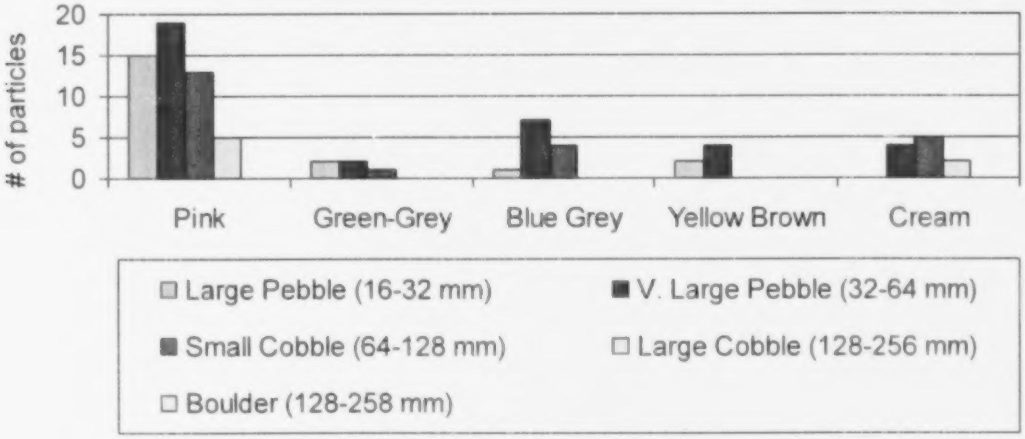
Average = 0.58 (Rod Shaped to Discoidal)
Standard deviation = 0.172

Color:

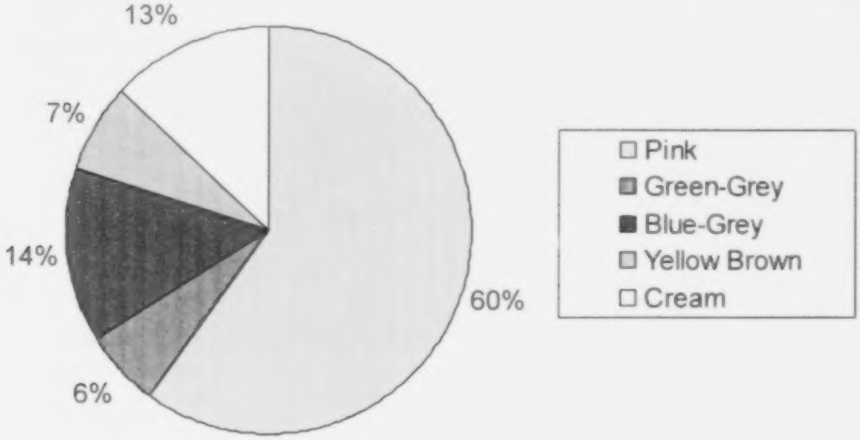
Sample # TW-074-01

Number of Different Colors	Limited (<2)	Several (2-4)	Many (>4)
			X

Color Classification vs Particle Class Size



Average Color Distribution



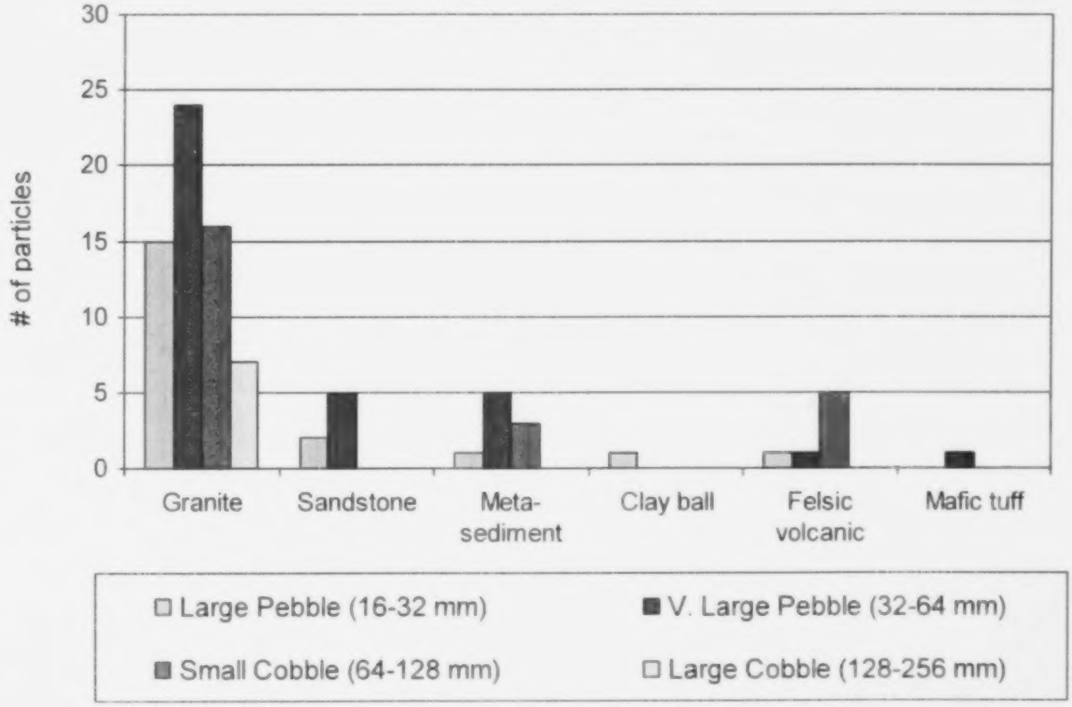
Rock Type:

Number of Different Textural Types

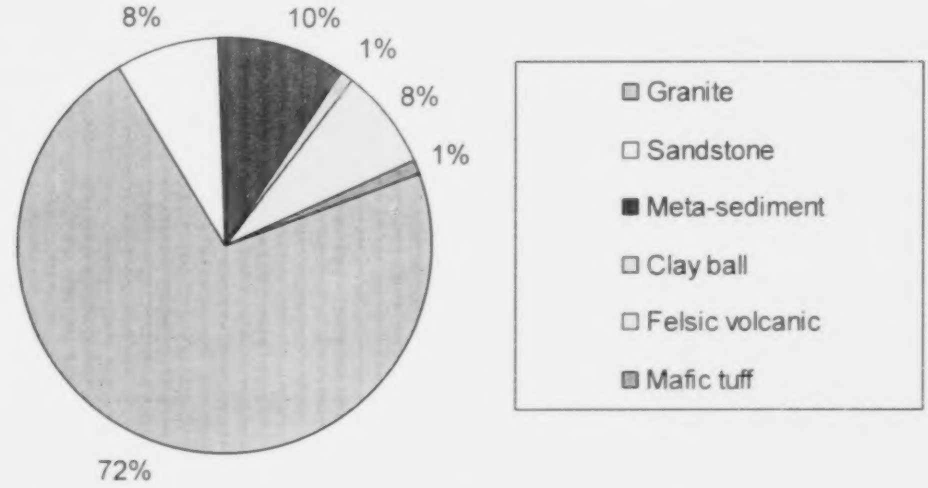
Sample # TW-074-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample #: TW-074-01

Scree pile of pebble to boulder size material south of Rocky Lake, eastern part of Charlotte County, southwestern New Brunswick.

Subrounded to rounded granite boulders in a small pit south of Rocky Lake, eastern part of Charlotte County, southwestern New Brunswick.

Comments: A moderate potential (65%) as a source of subrounded to rounded very large granite pebble, cobble and boulder (see Appendix D). Several lithotypes, textures and colors represented. Some granite material displays a rather unique and appealing rapakivi texture. There are however, uncertainties pertaining to the extent of the resource.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Pomeroy (north)

Sample #: TW-076-01 **Year:** 2001

Location: NTS: 21 G/07 County: Charlotte

Latitude: 45° 24.375" Longitude: 66° 56.019"

Zone: 19 UTM Northing: 5030100 UTM Easting: 661500

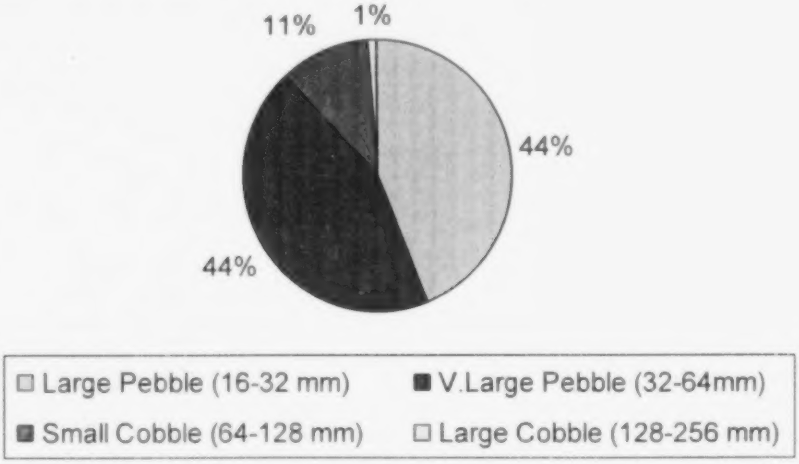
Description: A large (> 4 ha) active pit, 250 m east of the Magaguadavic River and 1.75 km northwest of Pomeroy.

Particle Size Classification:

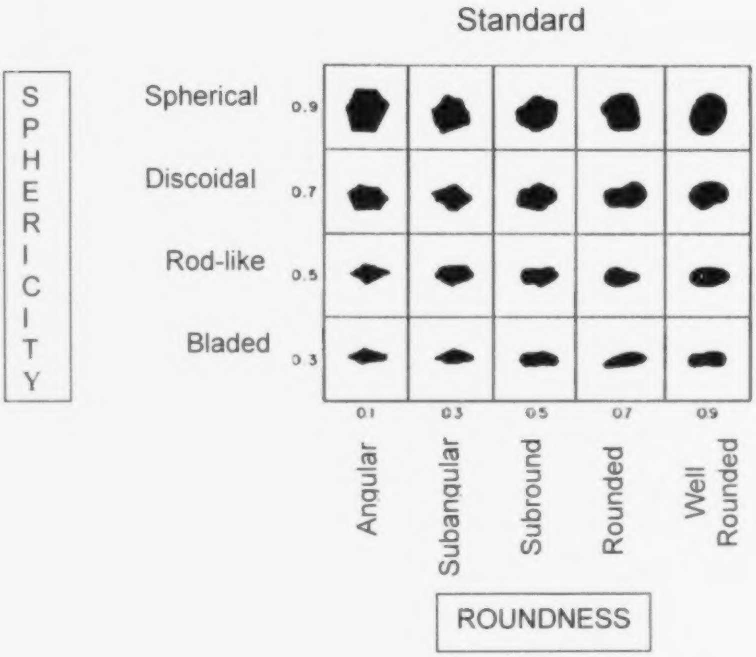
Pit–run Material

51 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**49 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

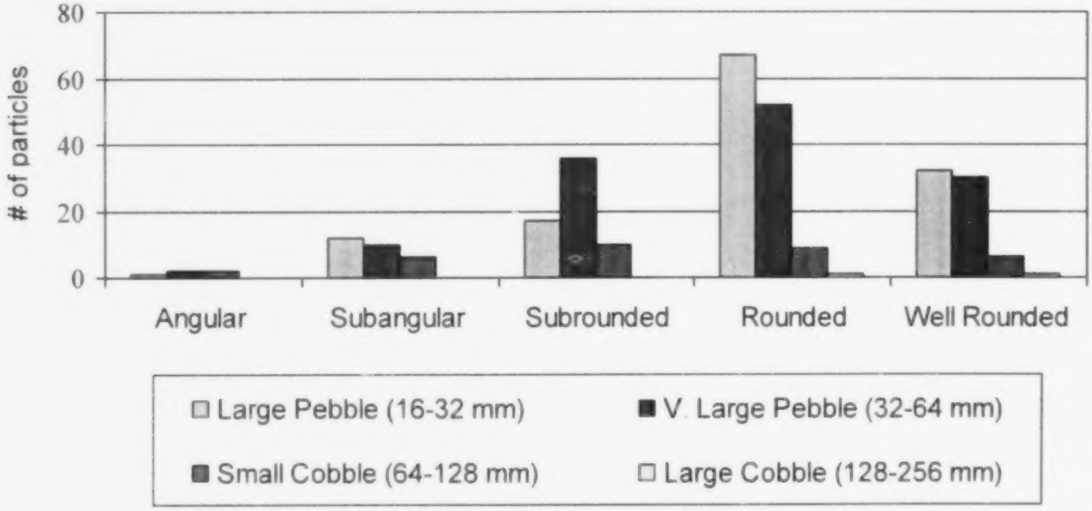


Roundness and Sphericity:



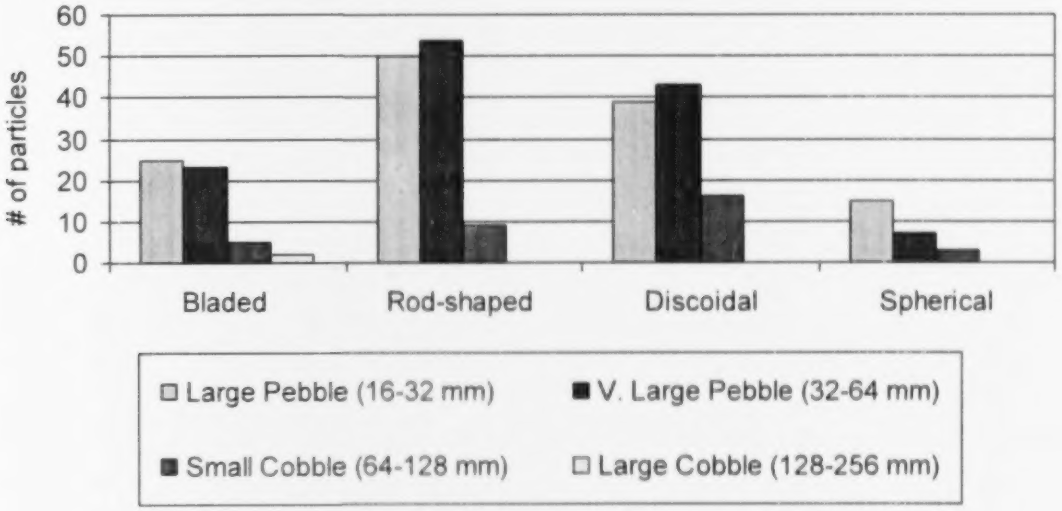
Roundness vs Particle Class Size

Sample # TW-076-01

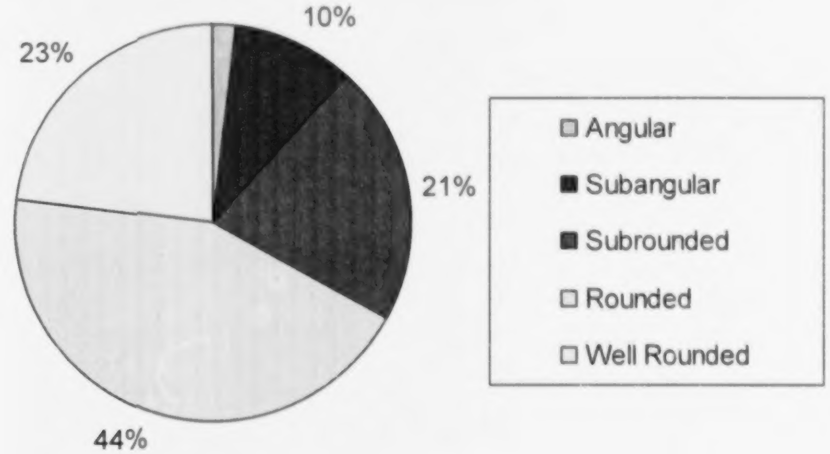


Sample # TW-076-01

Sphericity vs Particle Class Size

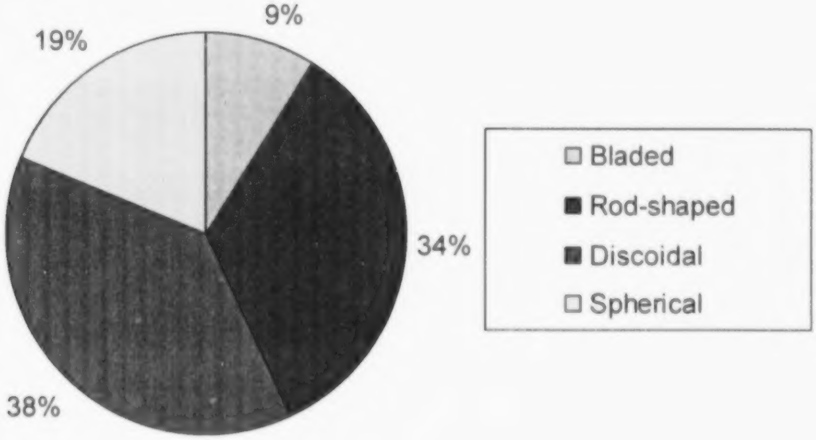


Average Roundness



Average = 0.65 (Rounded to Well Rounded to Subangular)
Standard deviation = 0.196

Average Sphericity



Average = 0.57 (Discoidal to Rod-shaped)
Standard deviation = 0.174

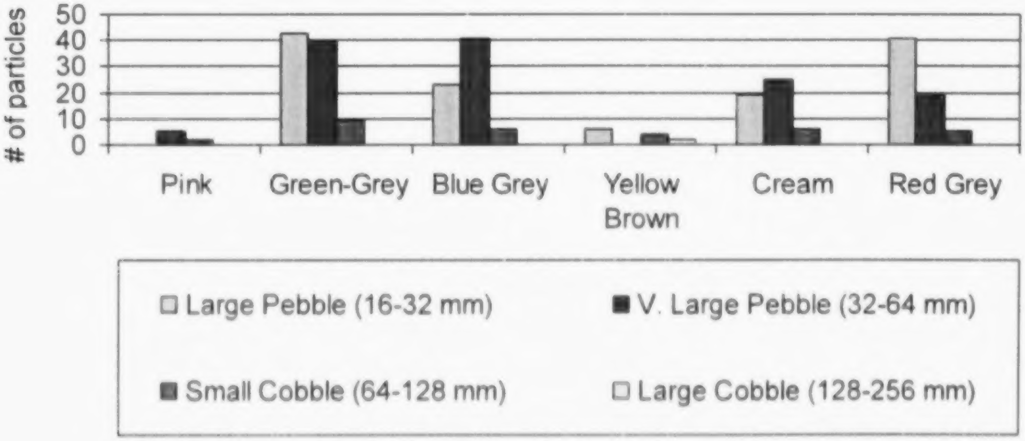
Color:

Sample # TW-076-01

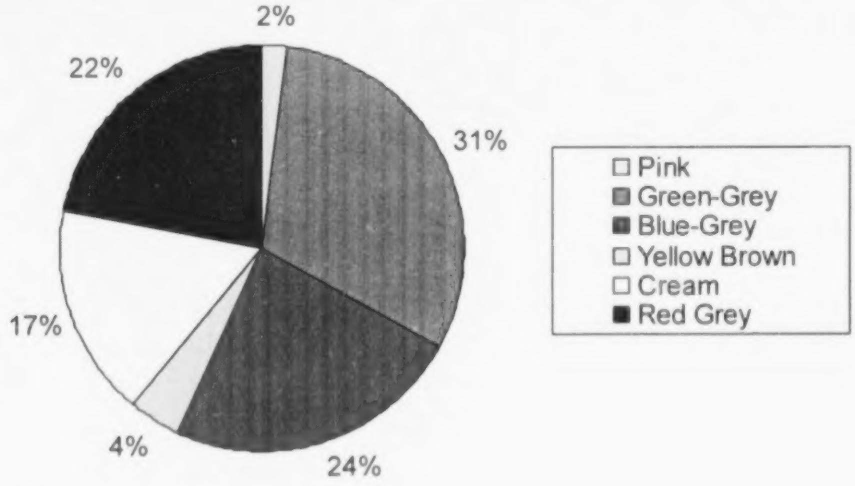
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



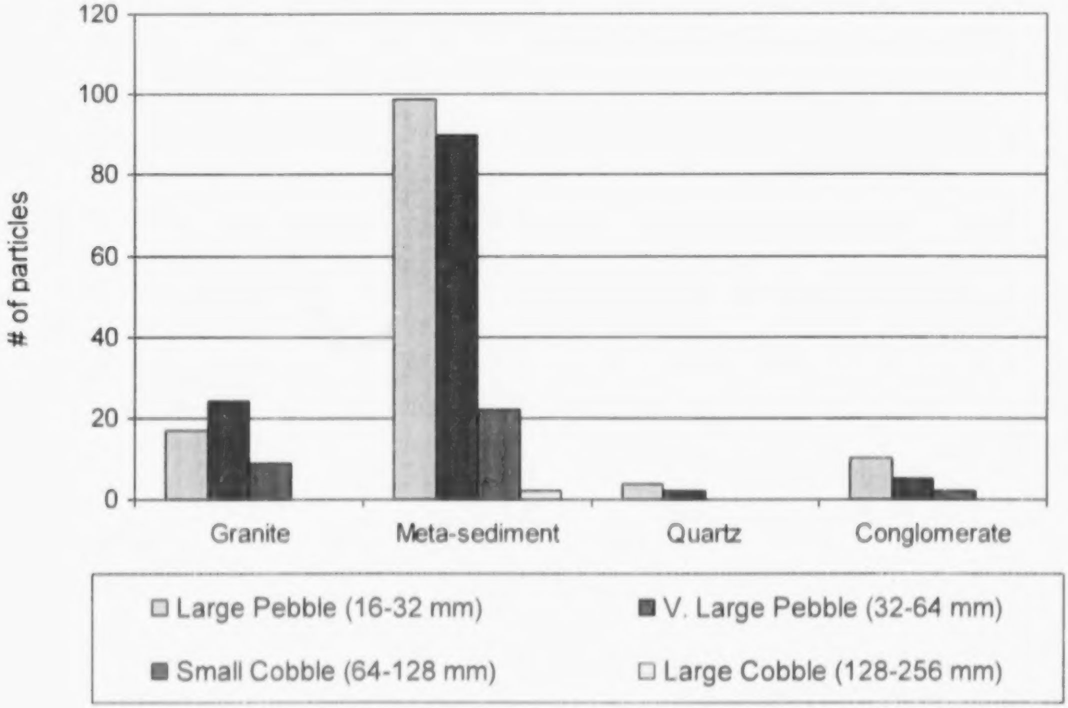
Rock Type:

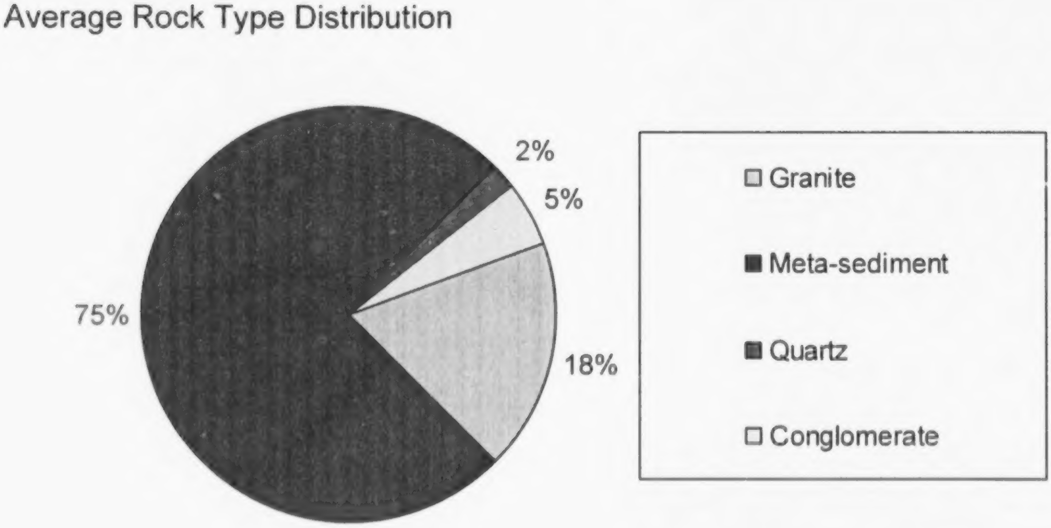
Number of Different Textural Types

Sample # TW-0764-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size





Pit face of meta-sedimentary and granite pebbles and cobbles near Pomeroy, eastern part of Charlotte County, southwestern New

Stock pile of meta-sedimentary and granite pebbles and cobbles near Pomeroy, eastern part of Charlotte County, southwestern New Brunswick.

Comments: Almost equal proportion of fine and coarse material at this pit site. Coarse fraction consists mostly of multiple colors of rounded, large and very large pebble with not many boulders. Resource appears to quite extensive and is rated at a moderate potential (62%) for decorative rock (see Appendix D).

New Brunswick Crown Land Pebble, Cobble, and Boulder Survey

Site Name: Trout Lake

Sample #: TW-077-01 **Year:** 2001

Location: NTS: 21 G/02 County: Charlotte

Latitude: 45° 11.375" Longitude: 66° 46.163"

Zone: 19 UTM Northing: 5006250 UTM Easting: 675100

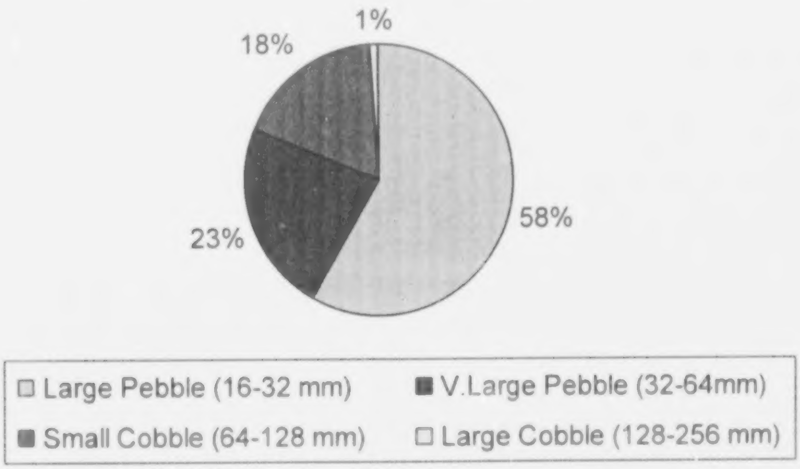
Description: A small (.5 ha) inactive pit, 200 m east of Hwy#785, midway between Trout and Mill lakes and 3.75 km north Lake Utopia Paper Mill.

Particle Size Classification:

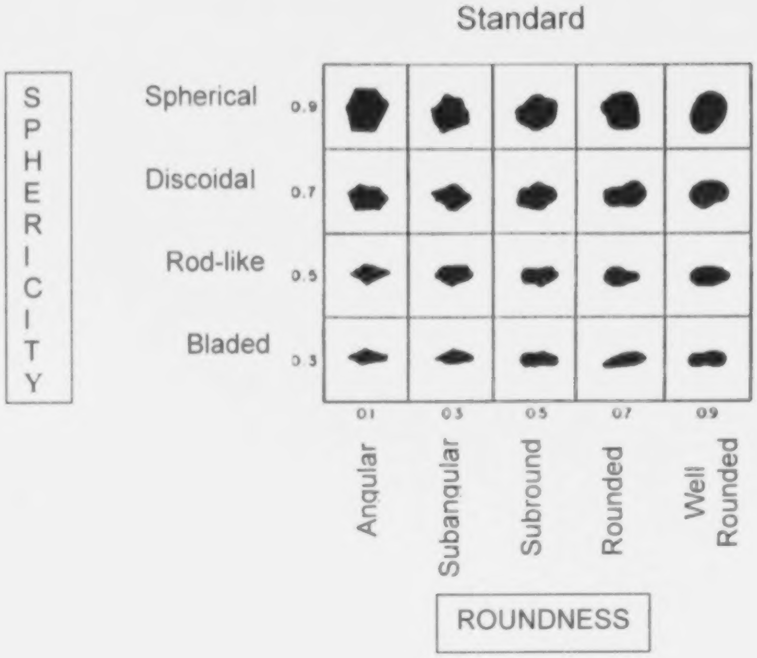
Pit–run Material

51 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**49 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

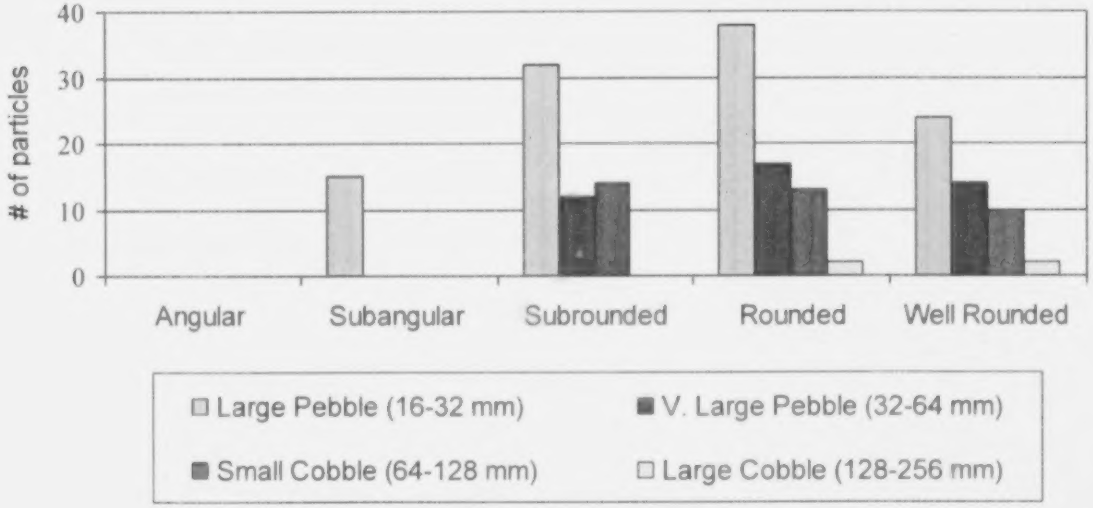


Roundness and Sphericity:



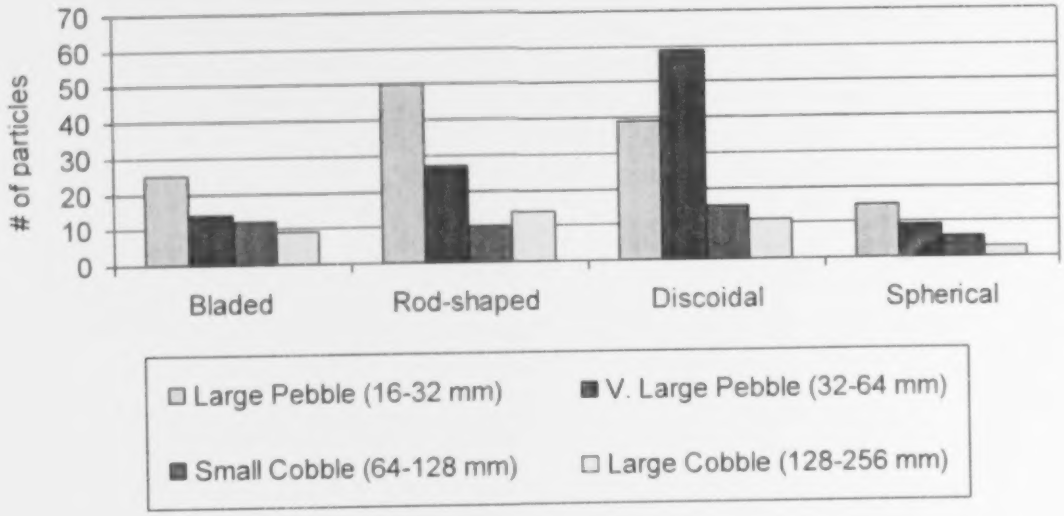
Roundness vs Particle Class Size

Sample # TW-077-01

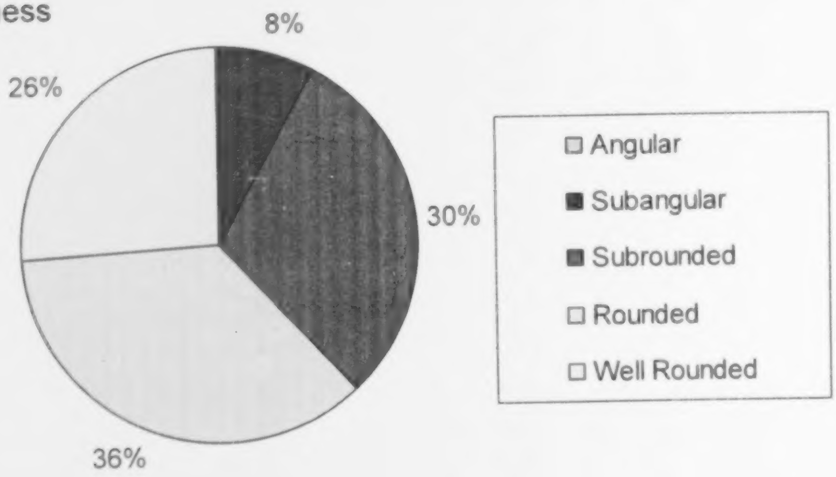


Sample # TW-077-01

Sphericity vs Particle Class Size

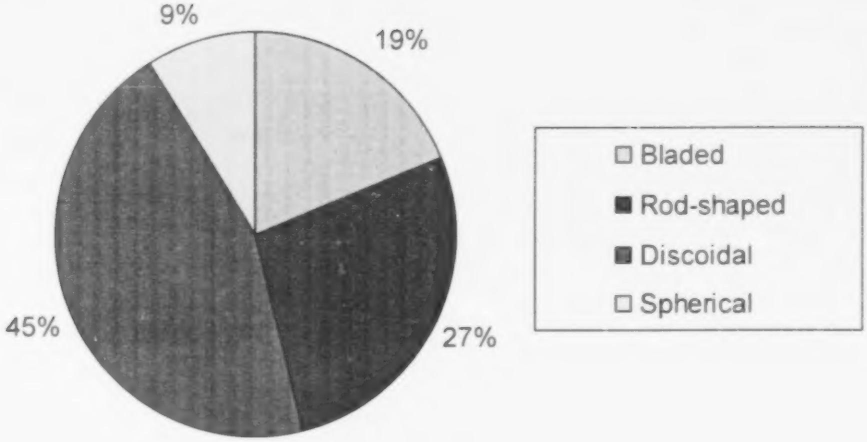


Average Roundness



Average = 0.66 (Rounded to Subrounded)
Standard deviation = 0.183

Average Sphericity

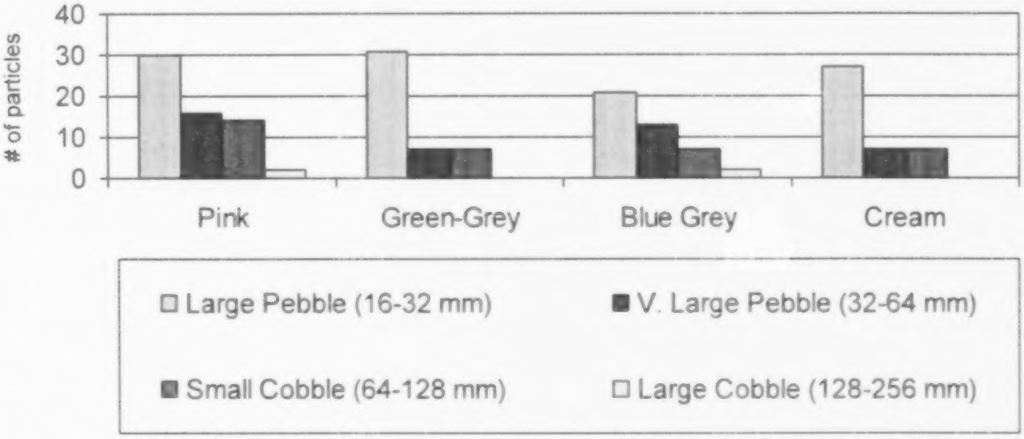


Average = 0.59 (Discoidal to Rod-shaped)
Standard deviation = 0.177

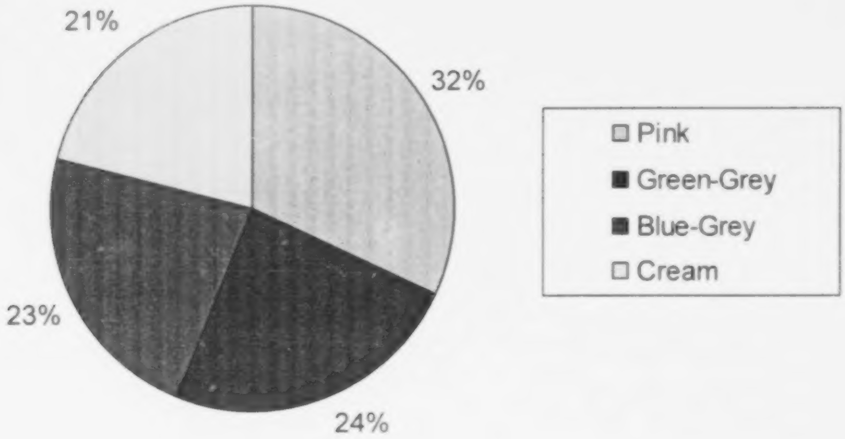
Color:

Number of Different Colors	Limited (<2)	Several (2-4)	Many (>4)
Sample # TW-077-01		X	

Color Classification vs Particle Class Size



Average Color Distribution



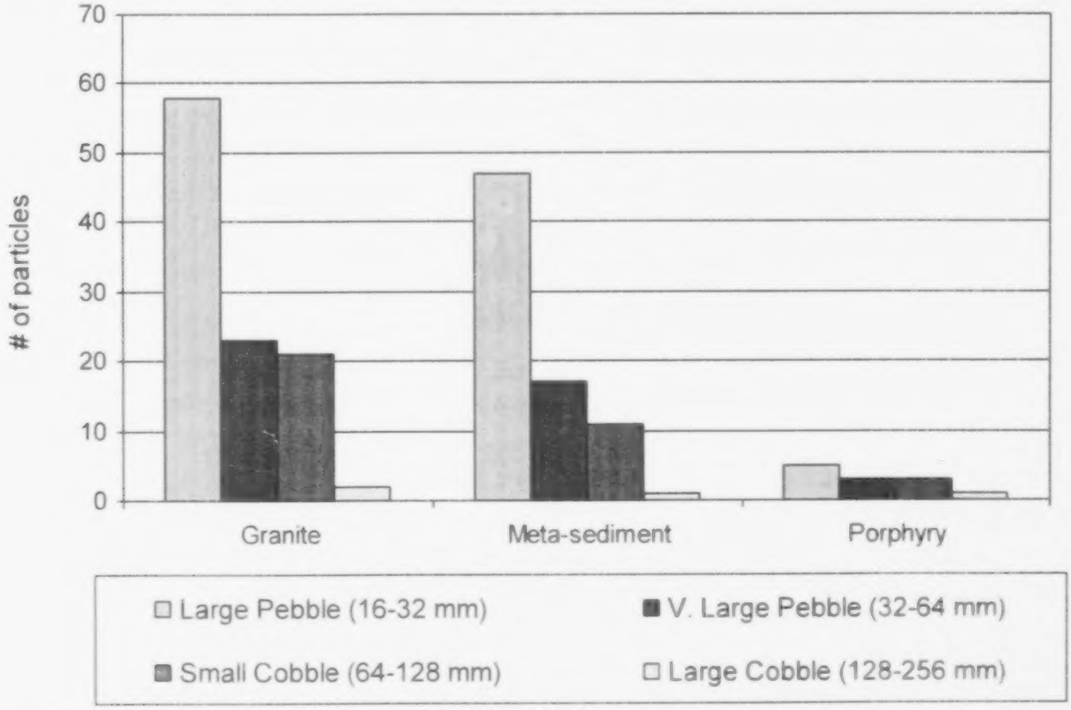
Rock Type:

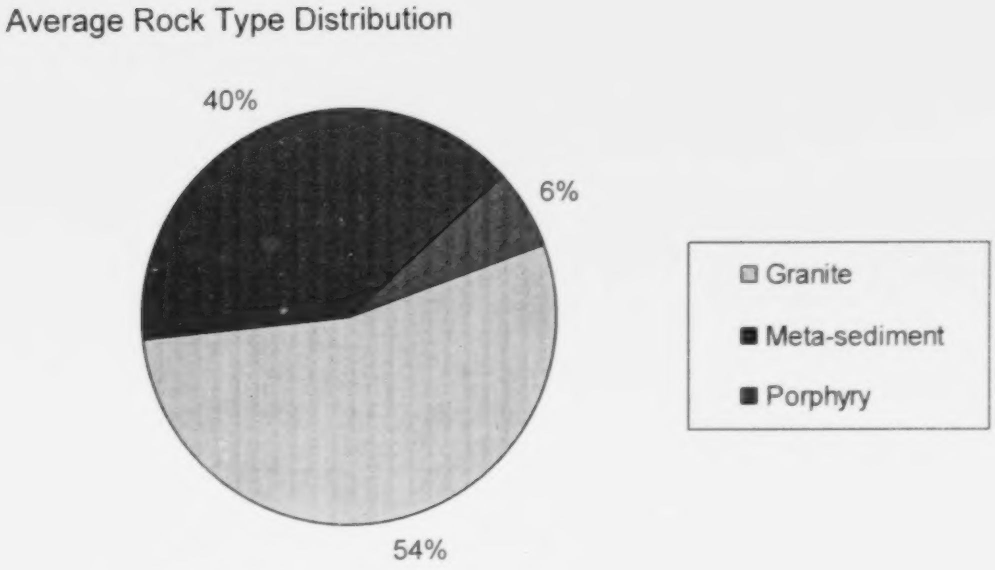
Number of Different Textural Types

Sample # TW-077-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size





Sample TW-077-01

Typical pit face of large and very large pebble and small cobble near Lake Utopia, eastern part of Charlotte County, southwestern New Brunswick.

Large and very large granite pebble near Lake Utopia, eastern part of Charlotte County, southwestern New Brunswick.

Comments: Sampled material displays > 80% rounded to well rounded, large to very large pebble. Pink granite pebbles comprise a significant part of the material. Resource appears to have a moderate potential (65%) for decorative material (see Appendix D) but may be of limited size.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Jerry Pond

Sample #: TW-078-01 **Year:** 2001

Location: NTS: 21 G/02 County: Charlotte

Latitude: 45° 10.000" Longitude: 66° 41.682"

Zone: 19 UTM Northing: 5004000 UTM Easting: 681400

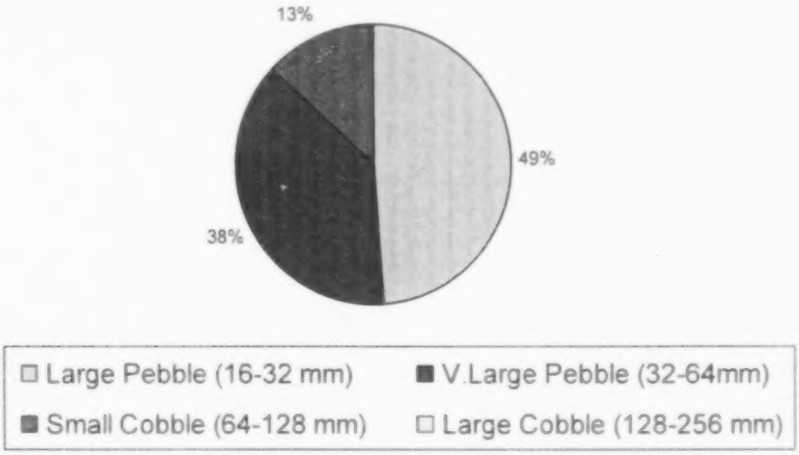
Description: A small (<.5 ha) inactive pit, 1.5 km north of Jerry Pond and 1.2 km north Hwy # 780

Particle Size Classification:

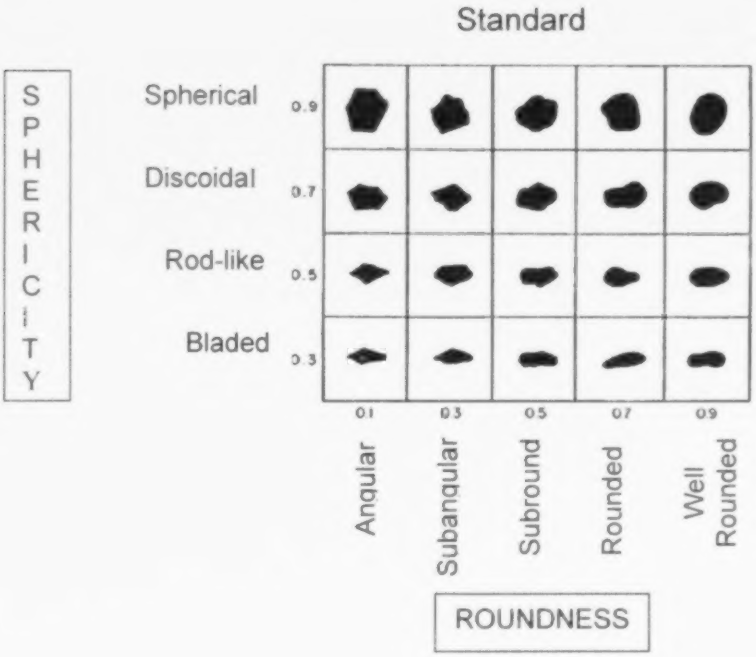
Pit-run Material

71 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**29 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

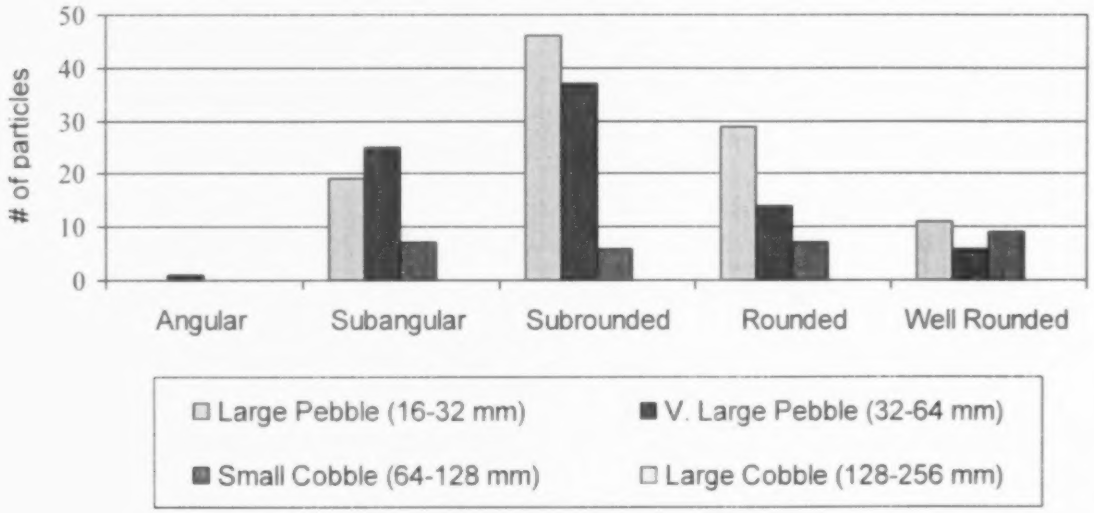


Roundness and Sphericity:



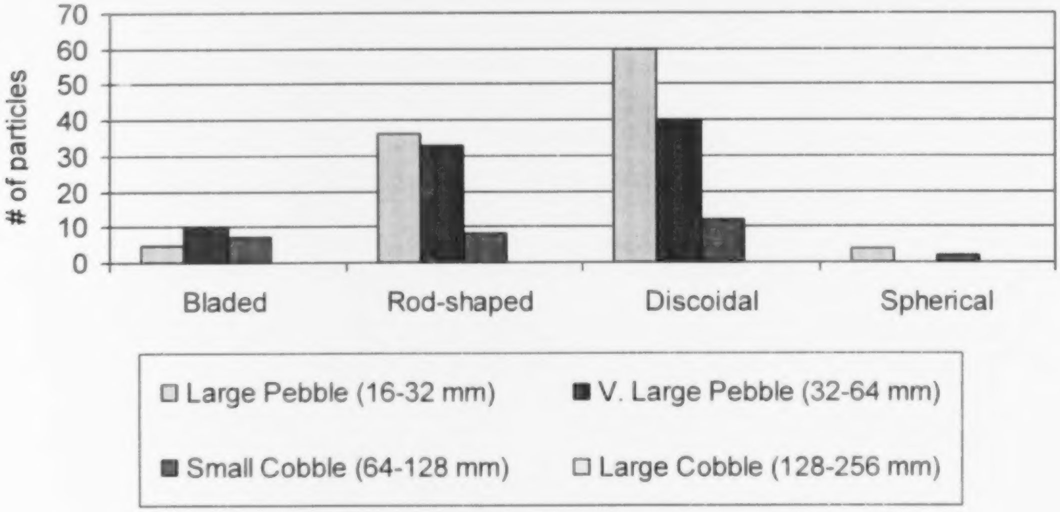
Roundness vs Particle Class Size

Sample - TW-078-01

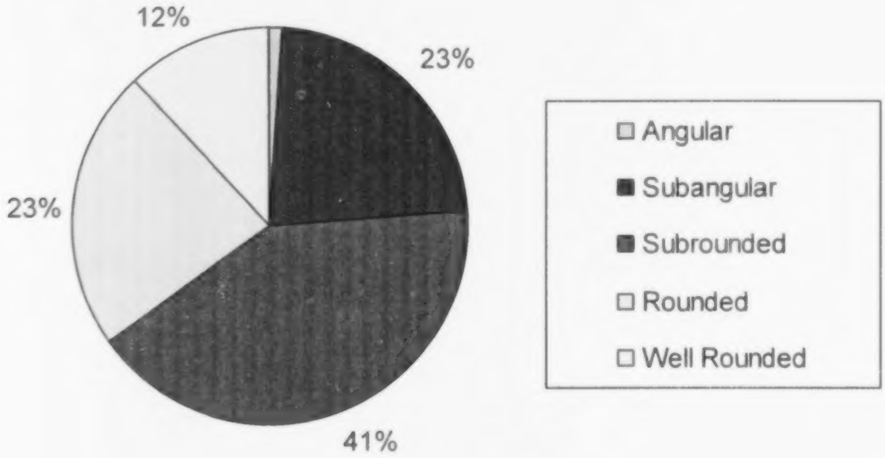


Sample # TW-078-01

Sphericity vs Particle Class Size

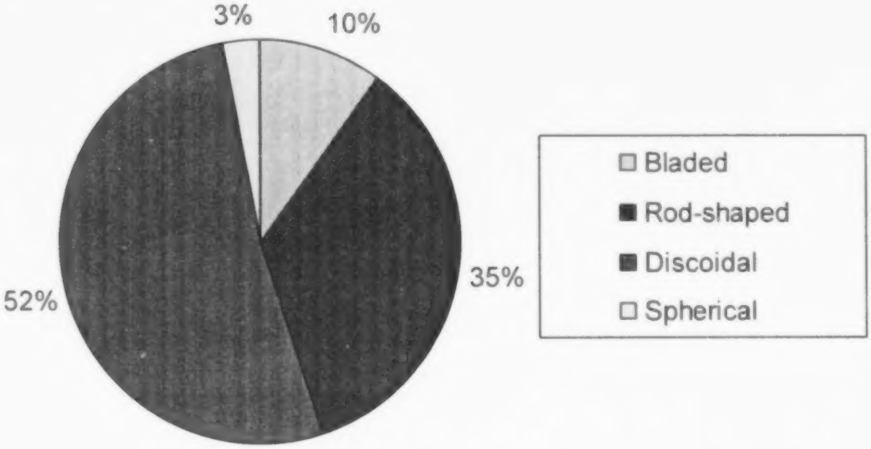


Average Roundness



Average = 0.53 (Subrounded to Rounded)
Standard deviation = 0.203

Average Sphericity



Average = 0.59 (Discoidal to Rod-shaped)
Standard deviation = 0.143

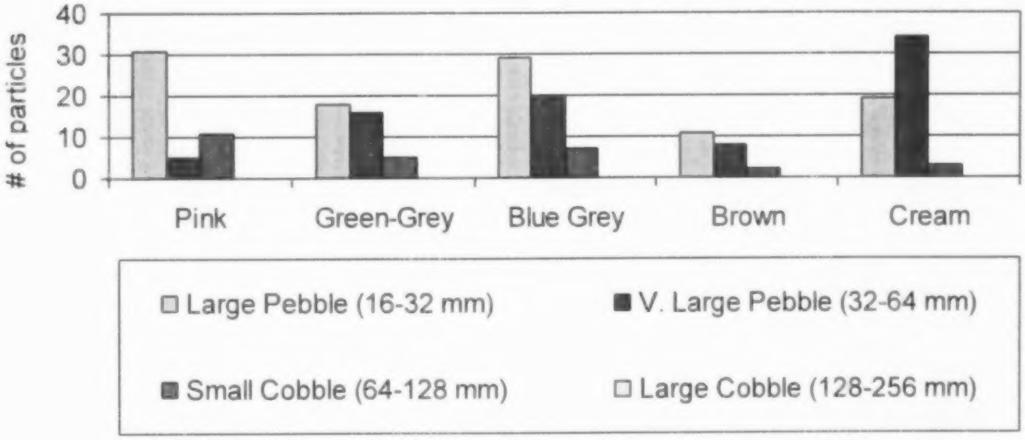
Color:

Sample # TW-078-01

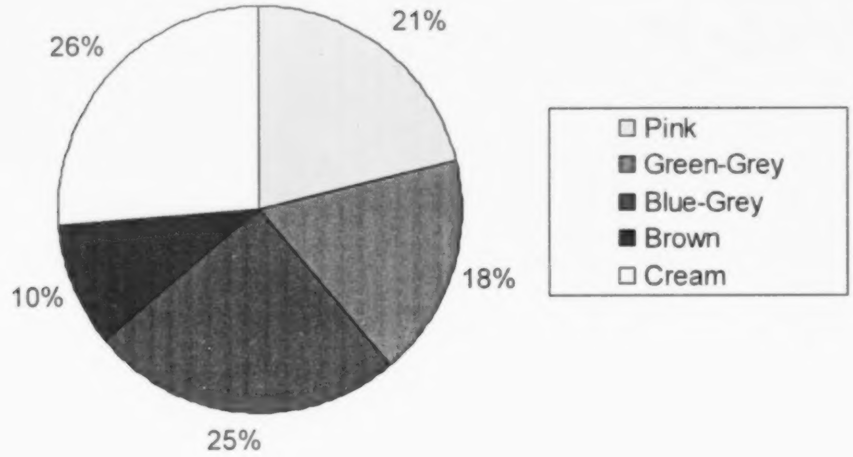
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



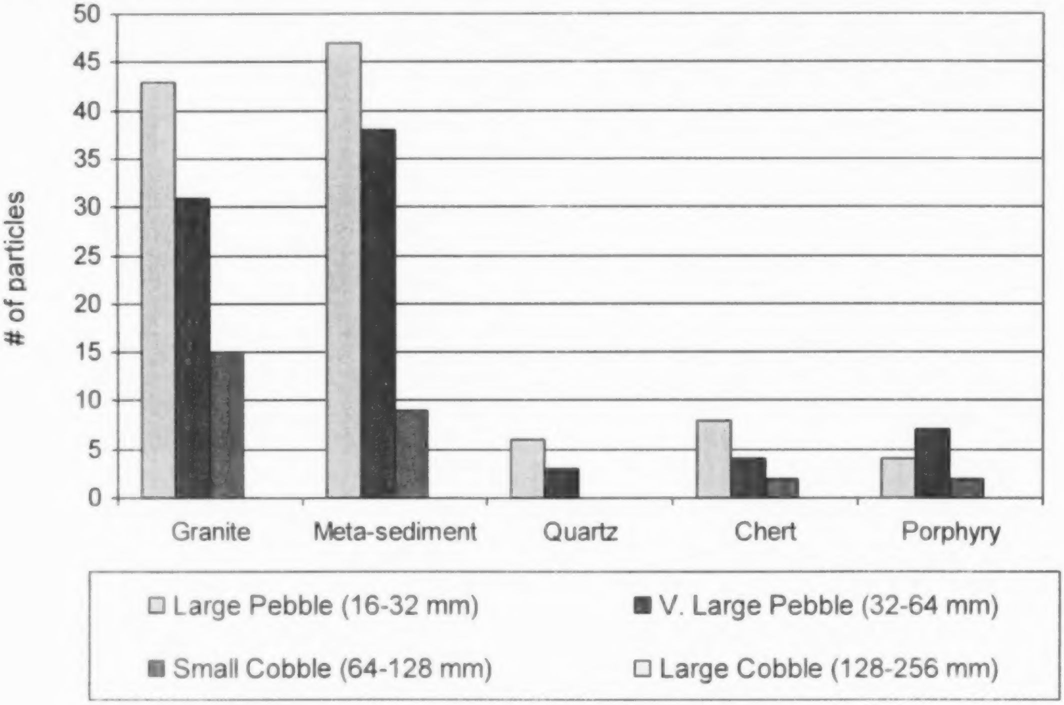
Rock Type:

Number of Different Textural Types

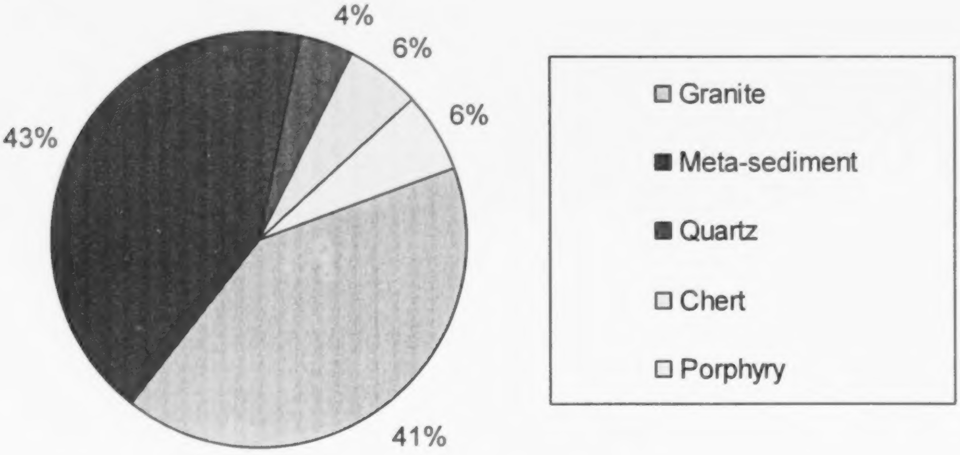
Sample # TW-078-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size



Average Rock Type Distribution



Comments: Material tends to be finer with coarser fraction consisting primarily of large to very large pebble. Over 40% of pebble is subrounded with almost equal (23%) proportion of subangular and rounded. Many colors and textures are present with granite and meta-sedimentary rock most common. Resource appears to offer a moderate to high potential (67%) for decorative rock (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Little Pocologan River

Sample #: TW-079-01 **Year:** 2001

Location: NTS: 21 G/02 County: Charlotte

Latitude: 45° 10.608" Longitude: 66° 37.231"

Zone: 19 UTM Northing: 5005050 UTM Easting: 685950

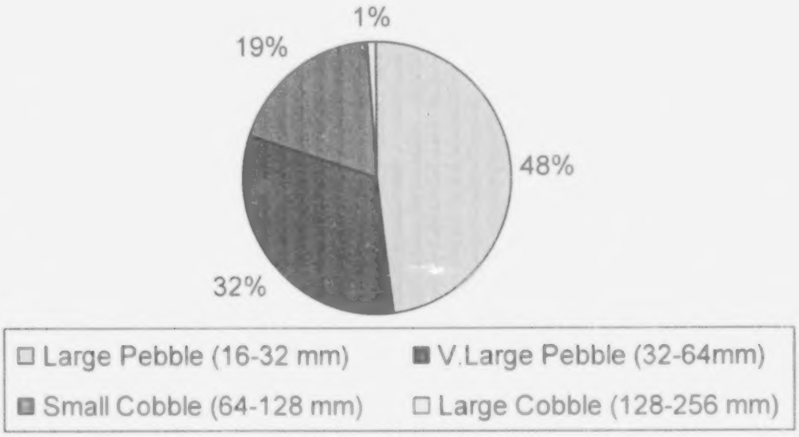
Description: A small (1-2 ha) inactive pit, south and adjacent Hwy #780, near the confluence of the Little Pocologan and Pocologan rivers.

Particle Size Classification:

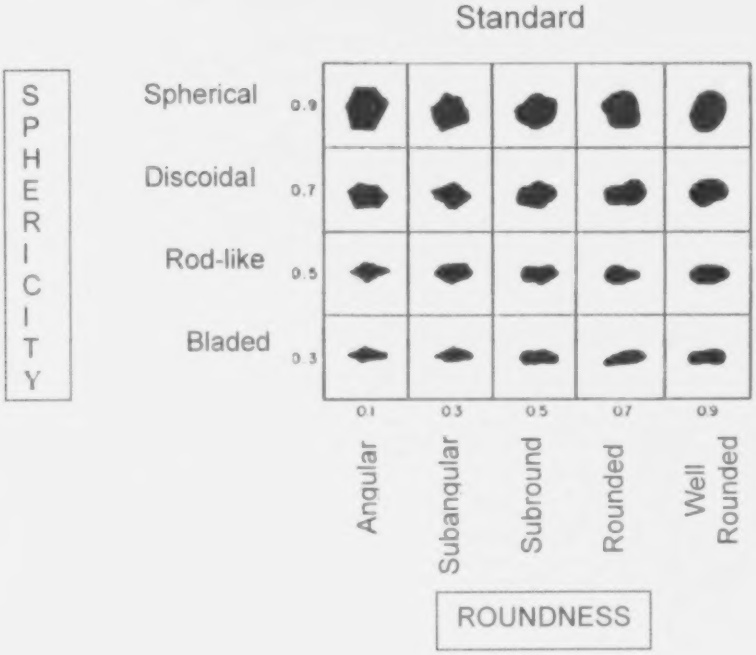
Pit–run Material

49 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**51 %** medium to large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

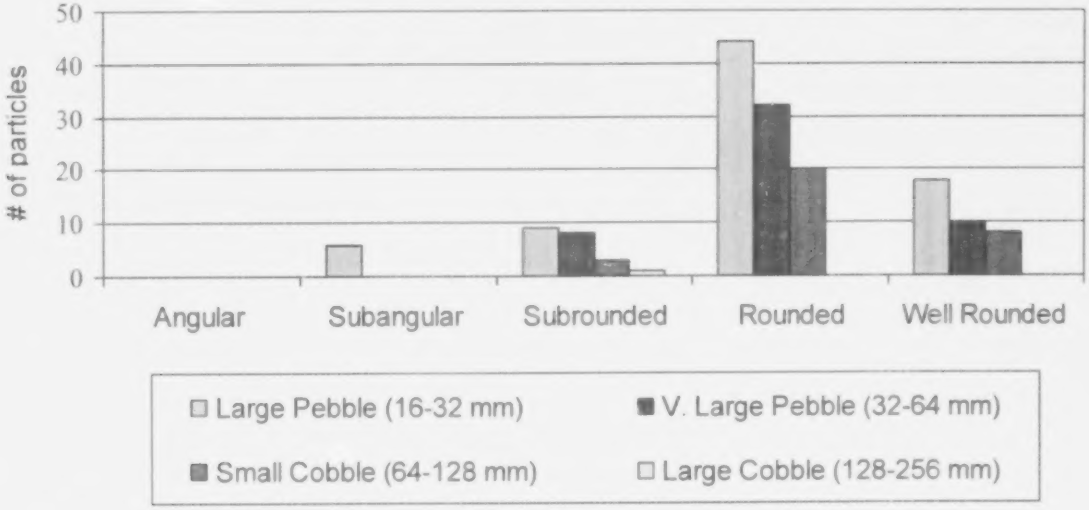


Roundness and Sphericity:



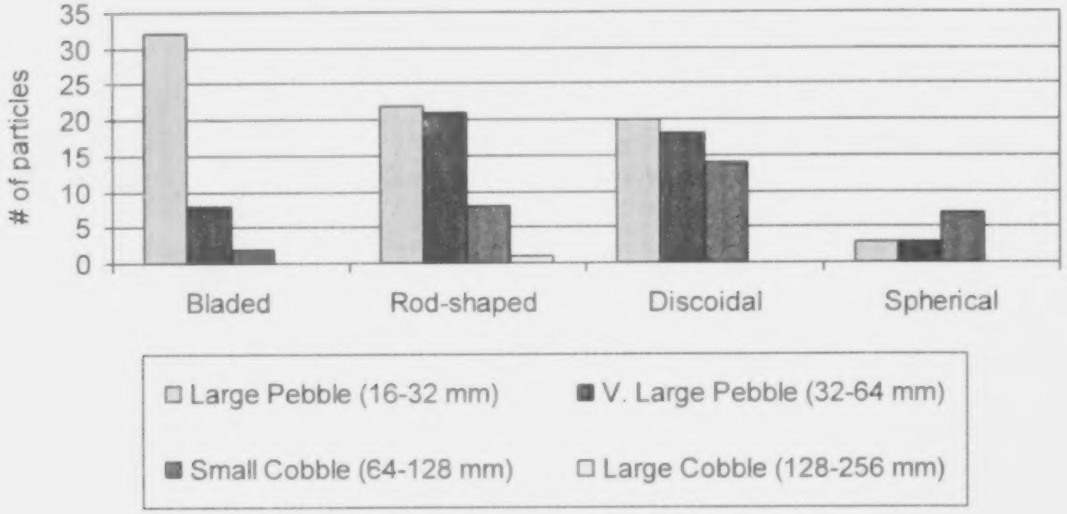
Roundness vs Particle Class Size

Sample # TW-079-01

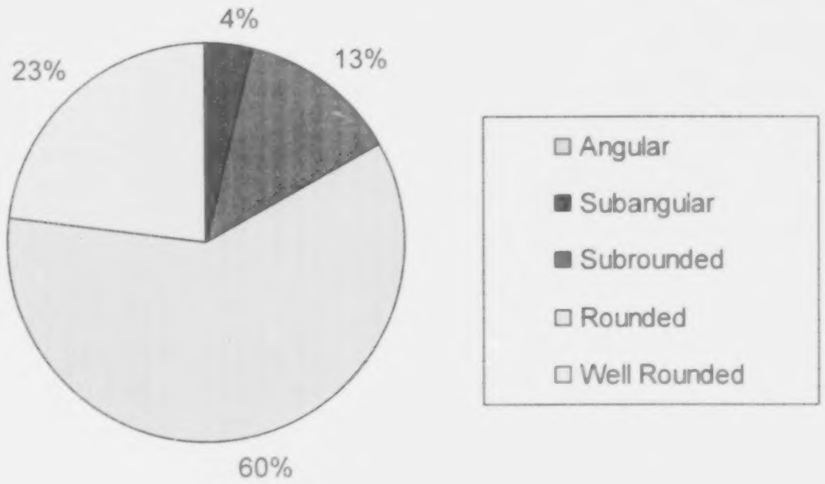


Sample # TW-079-01

Sphericity vs Particle Class Size

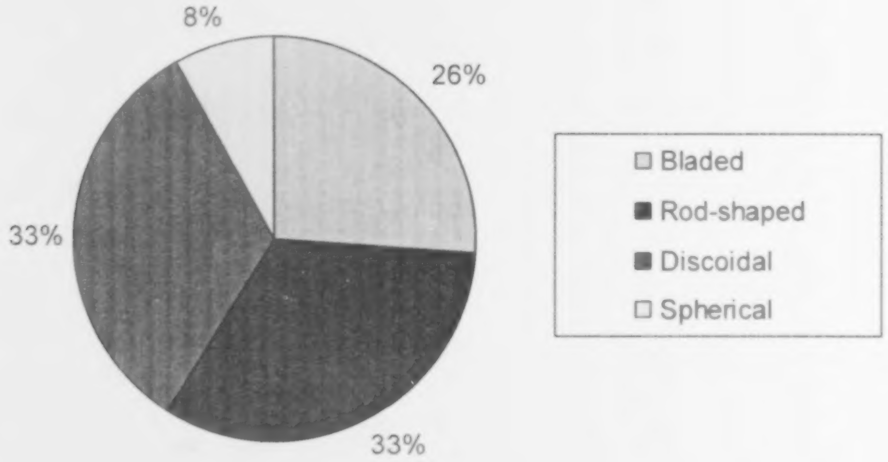


Average Roundness



Average = 0.56 (Rounded to Well Rounded)
Standard deviation = 0.187

Average Sphericity



Average = 0.70 (Discoidal/Rod-shaped)
Standard deviation = 0.187

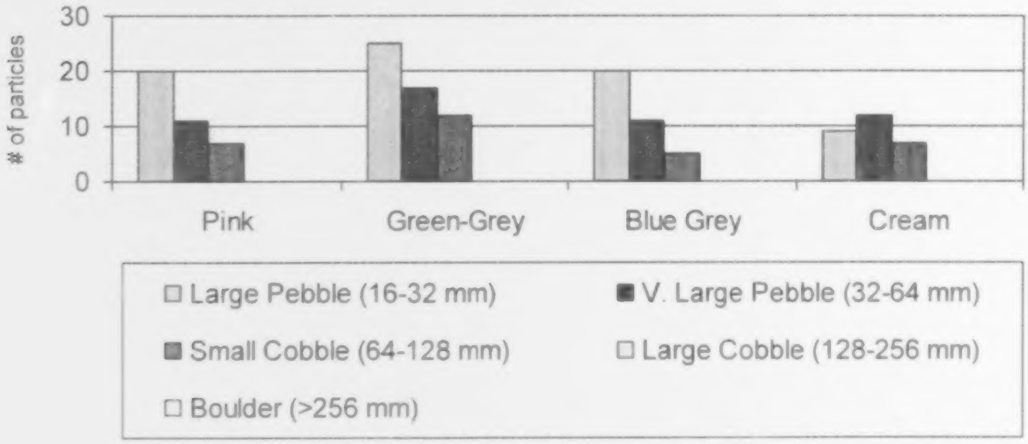
Color:

Sample # TW-079-01

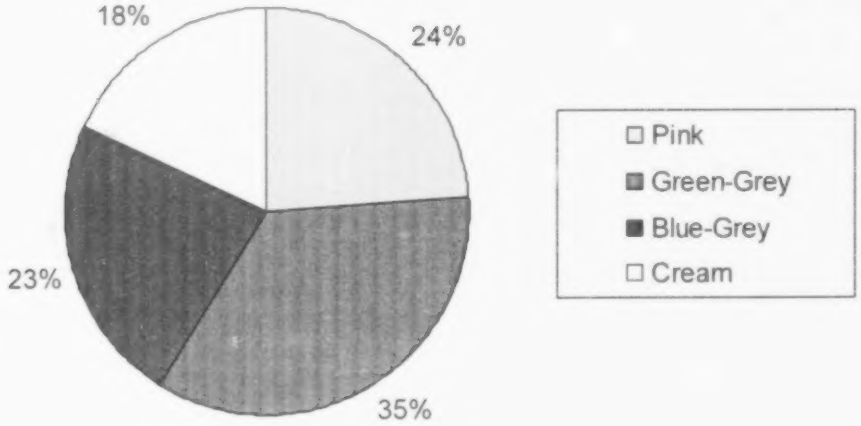
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



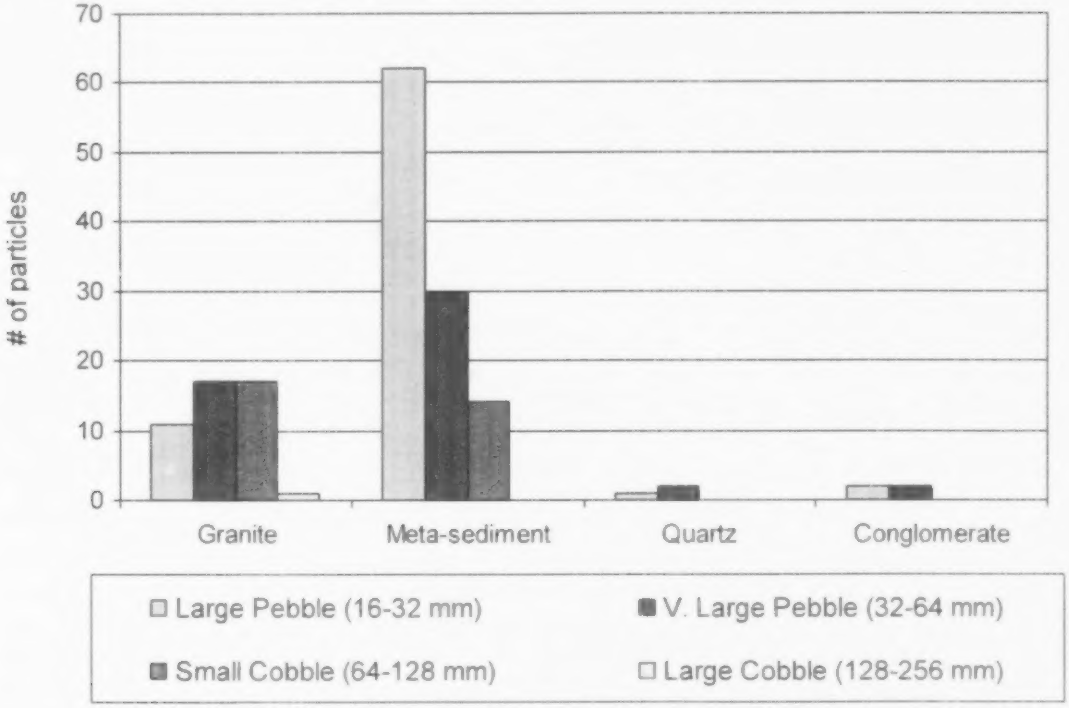
Rock Type:

Number of Different Textural Types

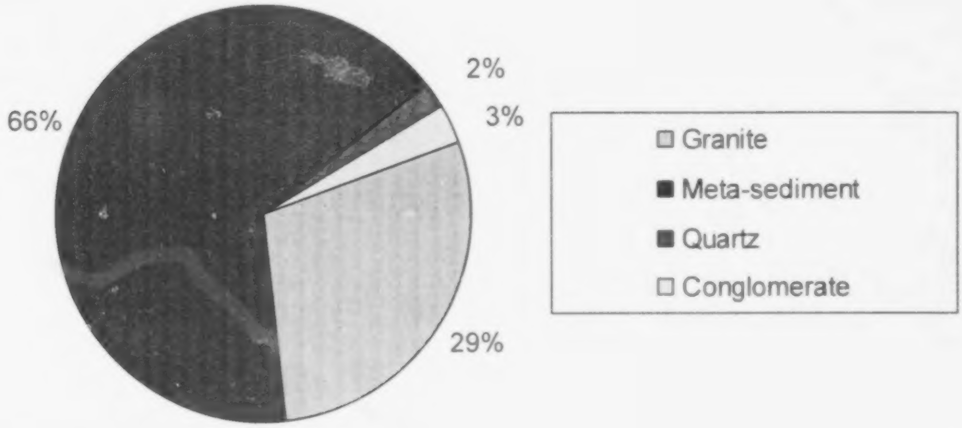
Sample # TW-079-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size

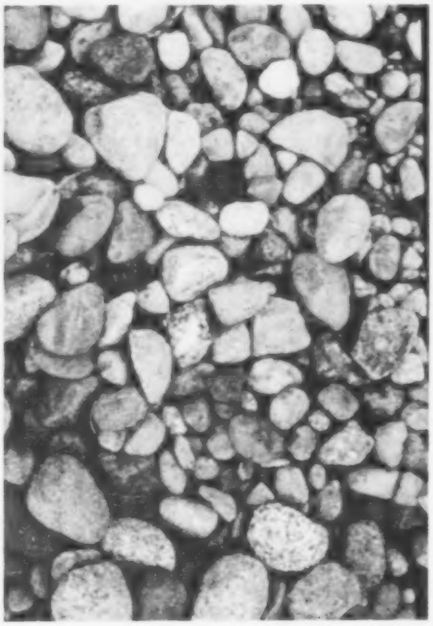


Average Rock Type Distribution



Sample TW-079-01

Pit face displaying pebbles and cobbles of meta-sedimentary rocks and granite, north of Little Pocologan River, eastern part of Charlotte County, southwestern New Brunswick



Scree pile of pebbles and cobbles of meta-sedimentary rocks and granite, north of Little Pocologan River, eastern part of Charlotte County, southwestern New Brunswick.

Comments: Sampled material displays almost equal proportions of fine and coarse material. Coarser fraction dominated by rounded to well rounded, large and very large pebble (80%) with (20%) cobble. Material is characterized by a good selection of contrasting light and dark colors with meta-sedimentary rocks and granite among the most typical rock types. Site is a private pit but is part of very large resource that extends north and south of Highway # 780 into areas occupied by large tracts of Crown Land. A moderate to high potential (68%) (see Appendix D) for decorative material is speculated for the area.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Seven Mile Lake Road (Hardwood Hill)

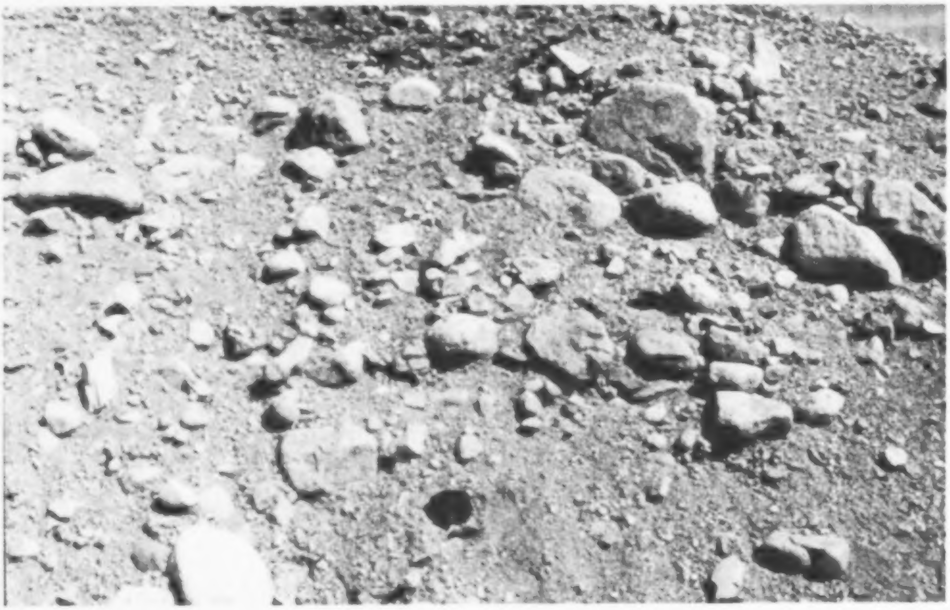
Sample #: TW-083-01 **Year:** 2001

Location: NTS: 21 G/01 County: Charlotte

Latitude: 45° 11.719" Longitude: 66° 28.545"

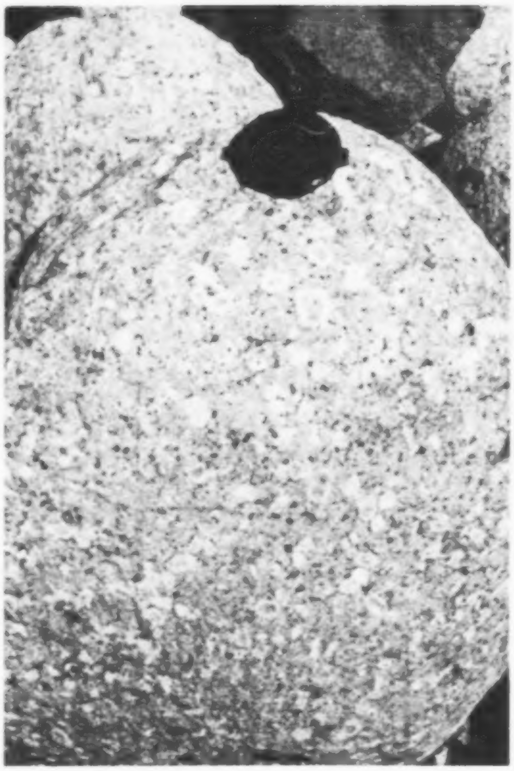
Zone: 19 UTM Northing: 5007250 UTM Easting: 698150

Description: A very large (>5 ha) inactive pit, 2.5 km north of Lepreau, west and adjacent the Seven Mile Lake road near Hardwood Hill.



Pit face comprised in part of pink granite pebble, cobble and boulders from a large pitted area north of Lepreau, eastern part of Charlotte County southwestern New Brunswick.

Rounded to subrounded pink granite boulders scattered about a large excavation north of Lepreau, eastern part of Charlotte County southwestern New Brunswick.



Rounded, pink granite boulder displaying a distinctive rapakivi texture. One of many boulders scattered about a large excavated area north of Lepreau, eastern part of Charlotte County southwestern New Brunswick.

Comments: Not sampled. Mostly sand and gravel at this pit site. Several pink, rapakivi textured, rounded granite boulders up to ½ meter across are scattered about the former excavated area. Large cobbles and boulders may comprise 10 to 20% of the visible material. Pit has undergone some reclamation (sloped faces) recently (2001). Site appears to offer an unqualified (moderate?) potential as a source of pink colored, uniquely textured granite pebble to boulder.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: West Branch Napadogan Brook

Sample #: TW-091-01 **Year:** 2001

Location: NTS: 21 J/06 County: York

Latitude: 46° 19.695" Longitude: 67° 00.216"

Zone: 19 UTM Northing: 5133100 UTM Easting: 653300

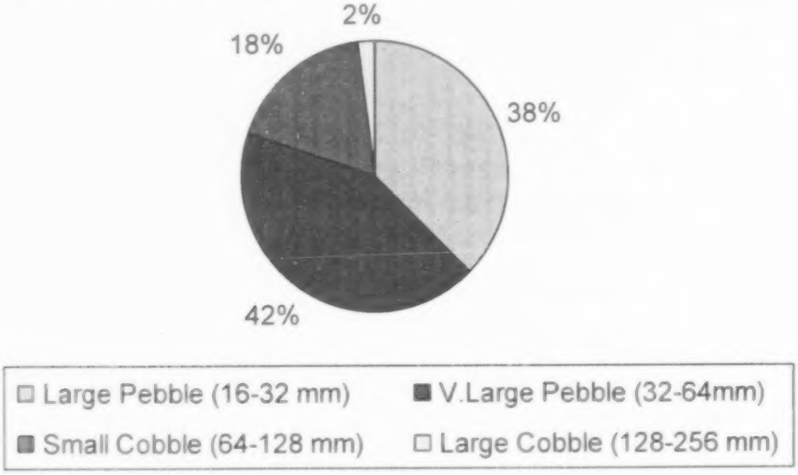
Description: A small (1 ha), inactive pit, 1.75 km 00 m south of where West Branch of Napadogan Brook crosses the Nashwaak Road, east of Billy Brown Mountain.

Particle Size Classification:

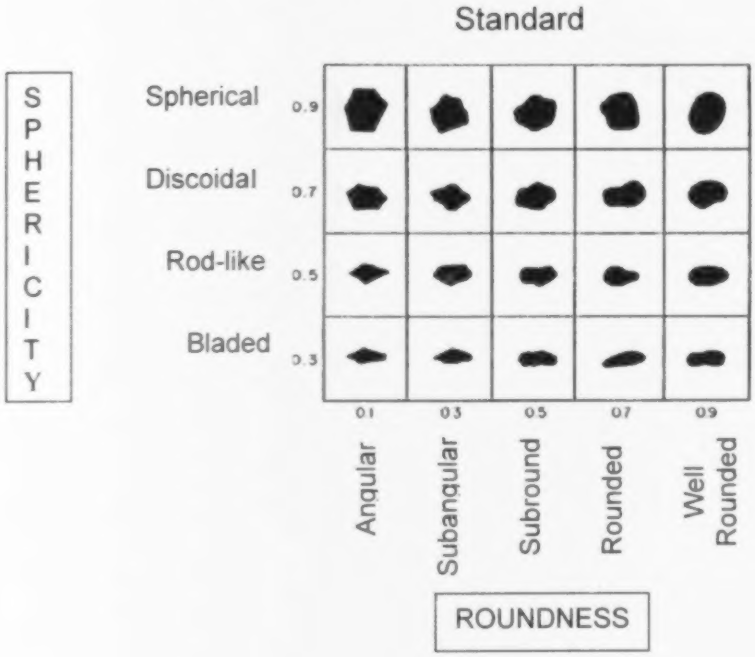
Pit–run Material

31 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**69 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

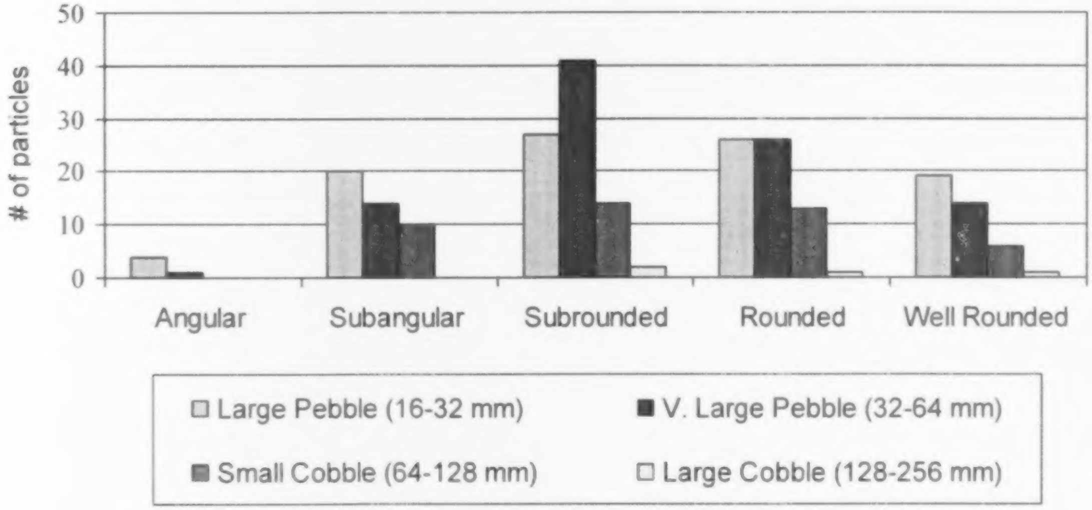


Roundness and Sphericity:



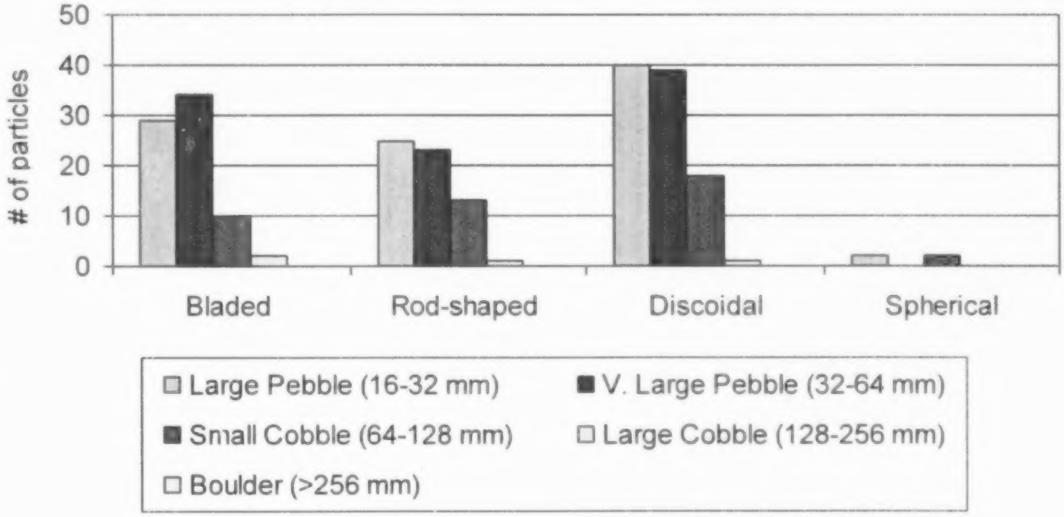
Roundness vs Particle Class Size

Sample # TW-091-01

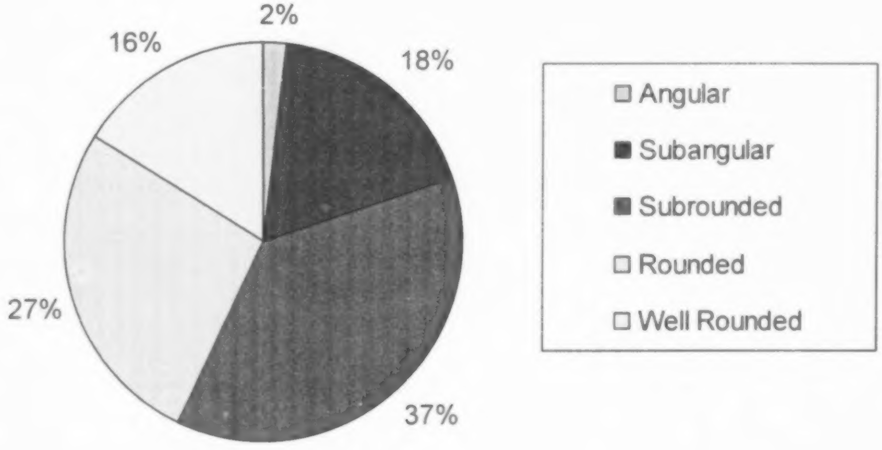


Sample # TW-091-01

Sphericity vs Particle Class Size

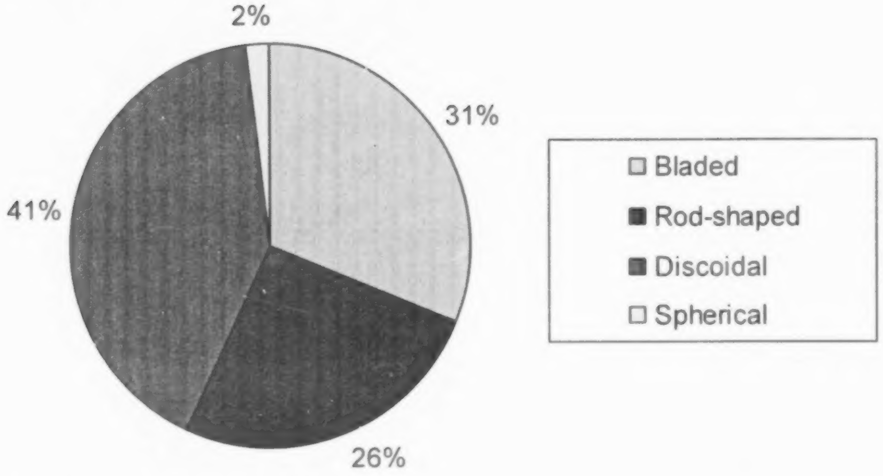


Average Roundness



Average = 0.58 (Subrounded to Rounded)
Standard deviation = 0.205

Average Sphericity



Average = 0.53 (Discoidal to Bladed)
Standard deviation = 0.178

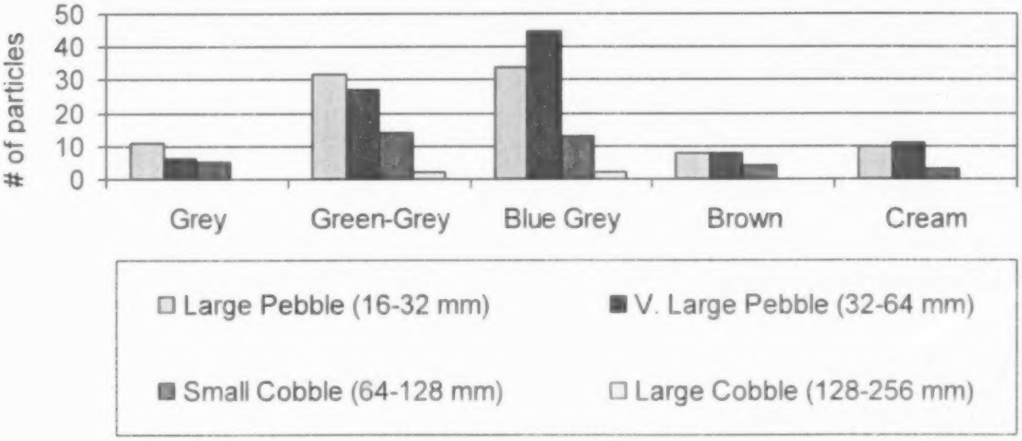
Color

Sample # TW-091-01

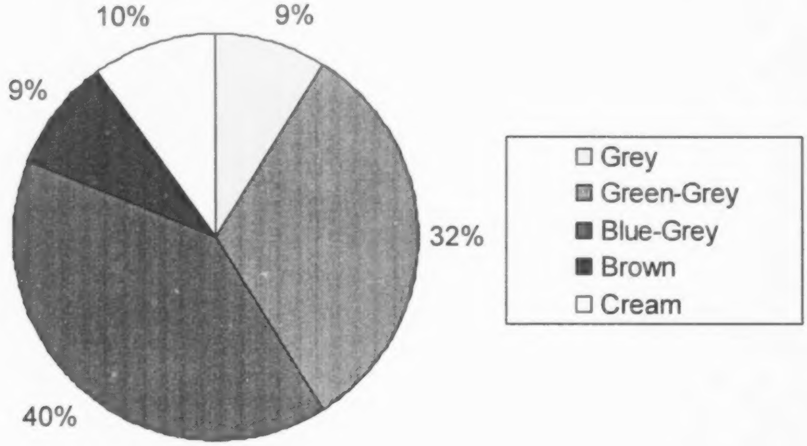
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



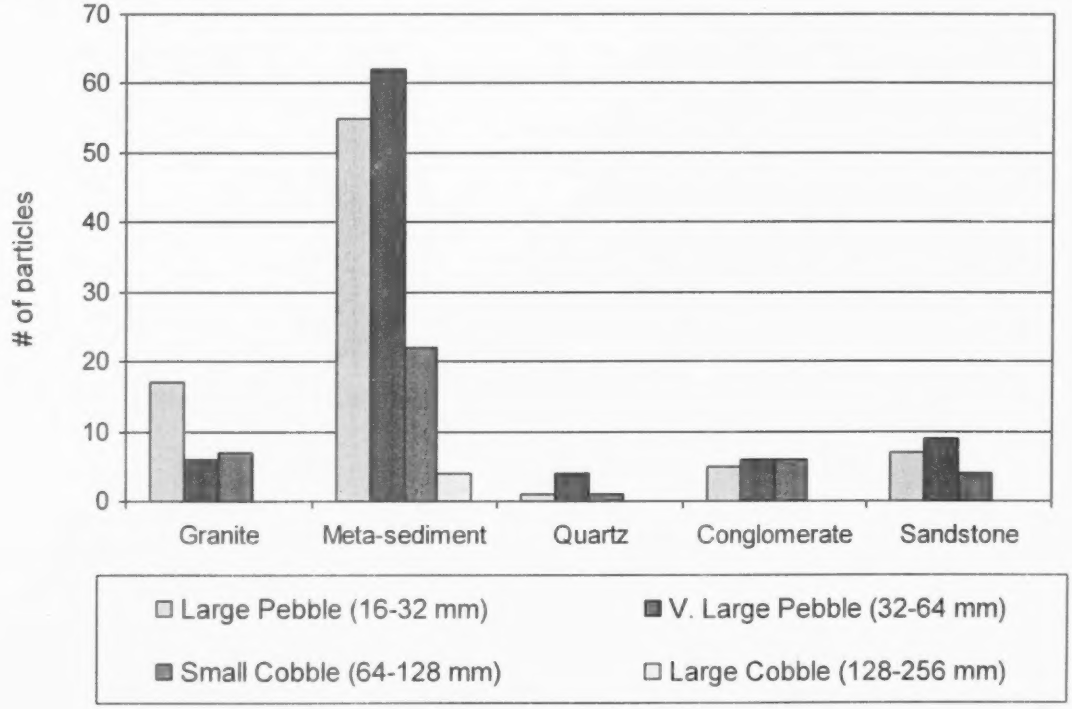
Rock Type:

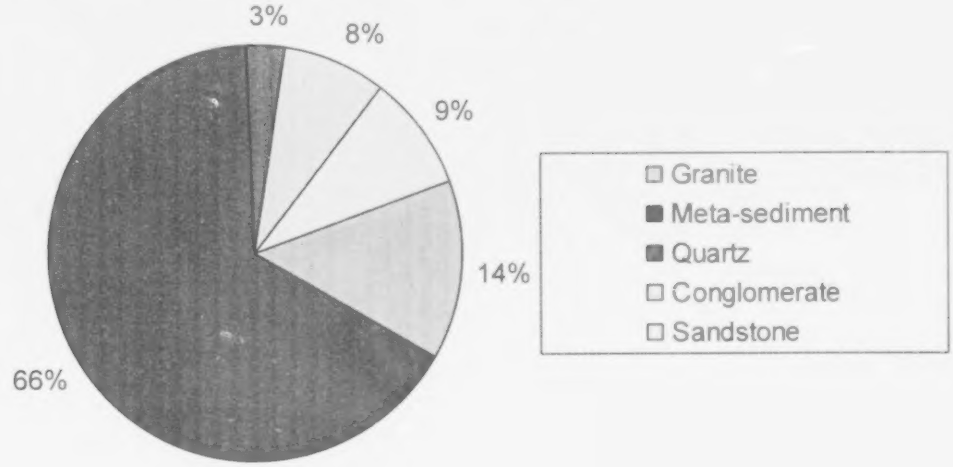
Number of Different Textural Types

Sample # TW-090-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size




Average Rock Type Distribution

Sample TW-090-01

Typical pit face displaying subrounded pebble and cobble, adjacent the Valley Forest Nashwaak Road near Napadogan Brook, northwestern part of York County, west central New Brunswick.

Scree pile of comprised mostly of subrounded, pebble and small cobble meta-sedimentary rocks in a pit adjacent the Valley Forest Nashwaak Road near Napadogan Brook, northwestern part of York County, west central New Brunswick

Comments: This site offers an abundance of coarse material mostly consisting of grey, subrounded, flattened, pebble to small cobble. There appears to be a significant cobble resource, however its color does not seem to be that appealing for high value decorative purposes. Decorative potential is rated at moderate (56%) (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Narrows Mountain-Nashwaak River

Sample #: TW-092-01 **Year:** 2001

Location: NTS: 21 J/06 County: York

Latitude: 46° 17.050" Longitude: 67° 01.270"

Zone: 19 UTM Northing: 5127350 UTM Easting: 652450

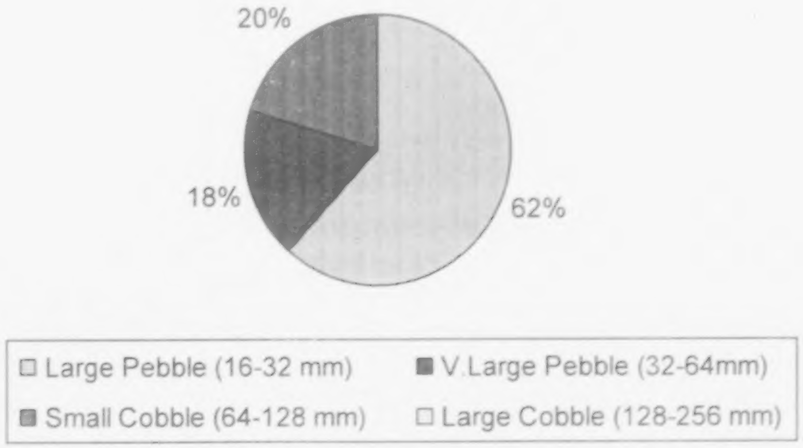
Description: A very small (.5 ha) inactive pit, 50 m east and adjacent the Nashwaak Haul Road, 600 m south of where it crosses over the Nashwaak River.

Particle Size Classification:

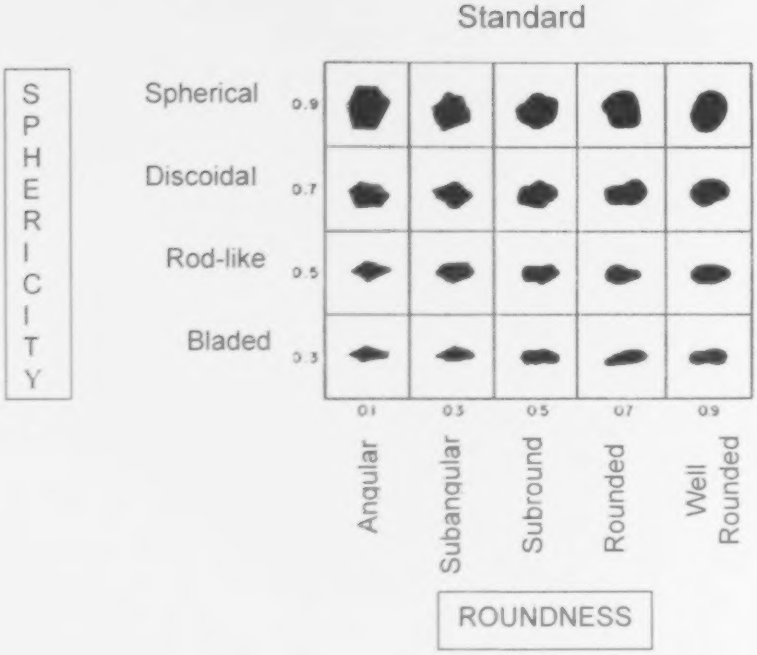
Pit–run Material

67 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**33 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

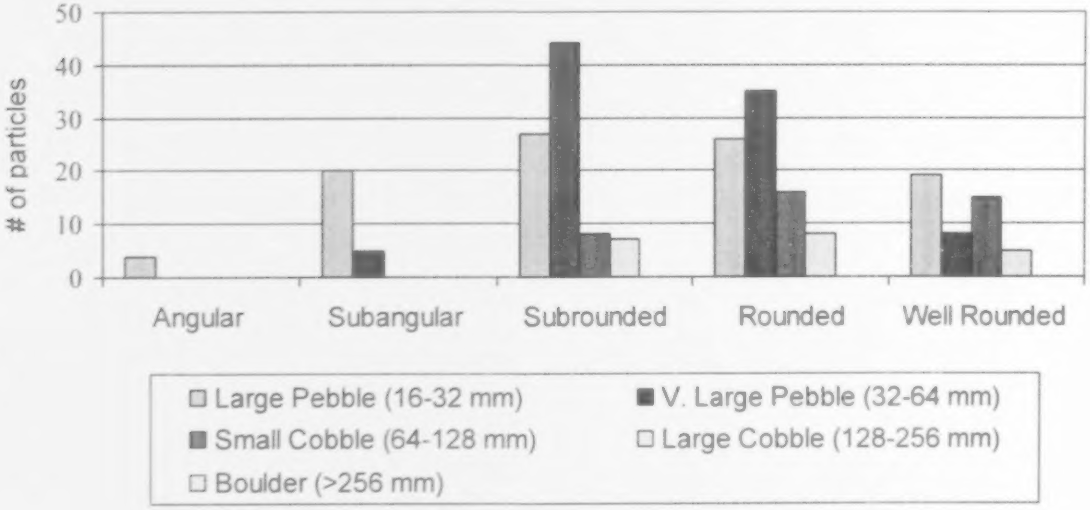


Roundness and Sphericity



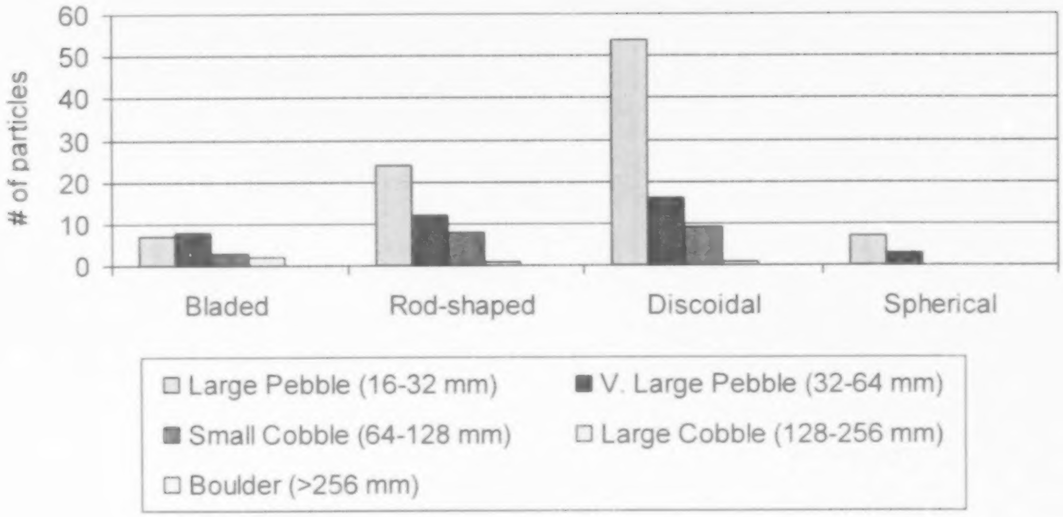
Roundness vs Particle Class Size

Sample # TW-092-01

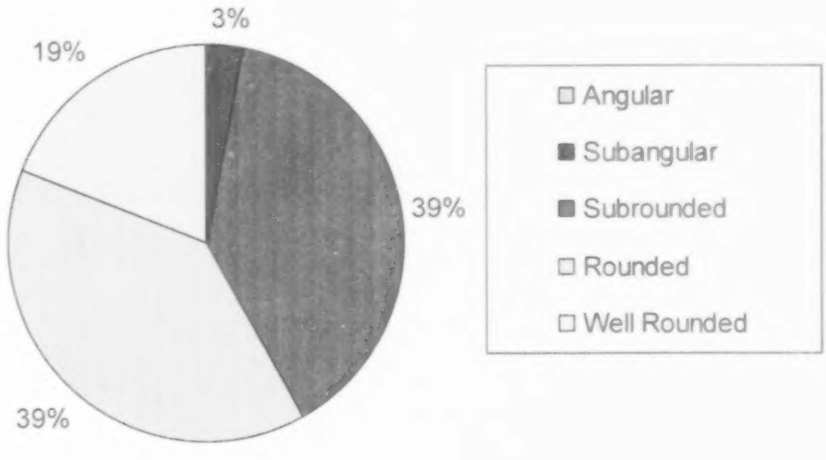


Sample # TW-092-01

Sphericity vs Particle Class Size

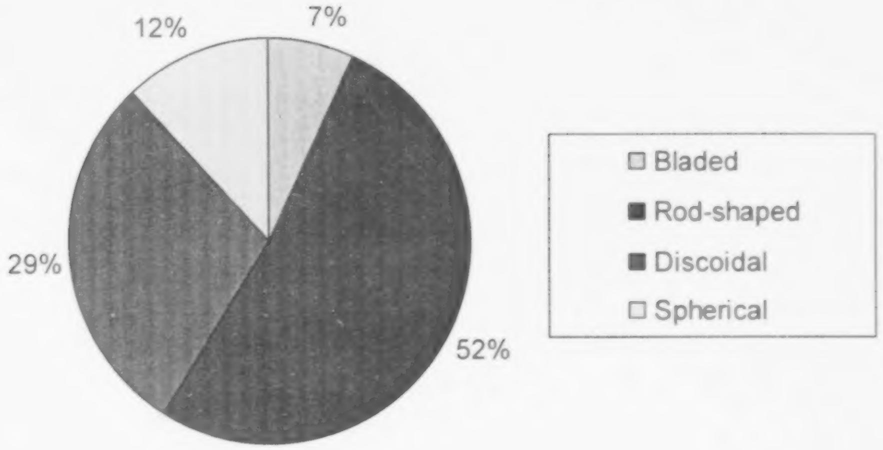


Average Roundness



Average = 0.64 (Subrounded to Rounded)
Standard deviation = 0.159

Average Sphericity



Average = 0.61 (Rod-shaped to Discoidal)
Standard deviation = 0.158

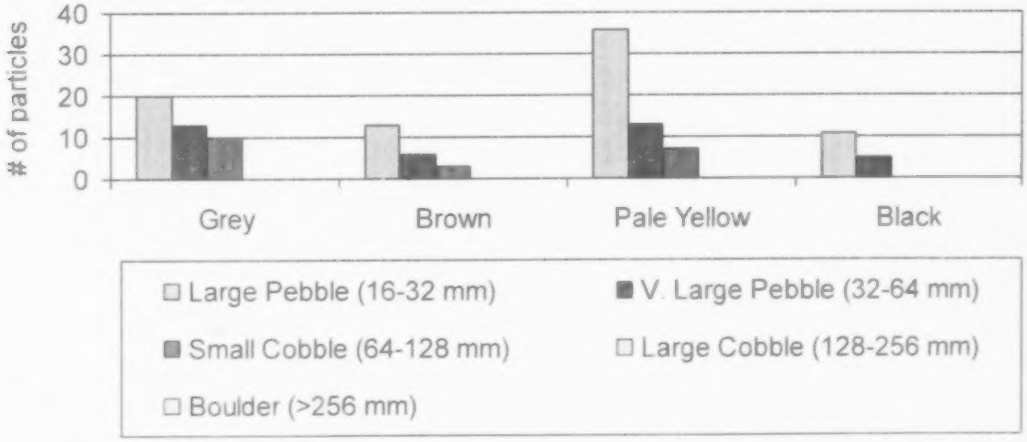
Color:

Sample # TW-092-01

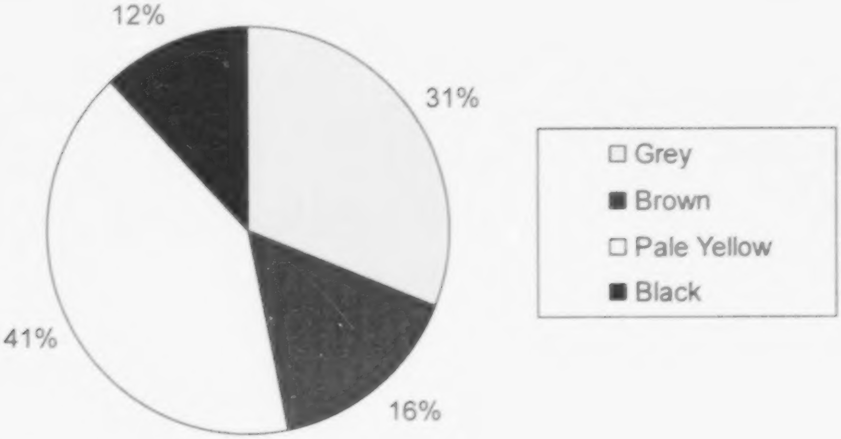
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



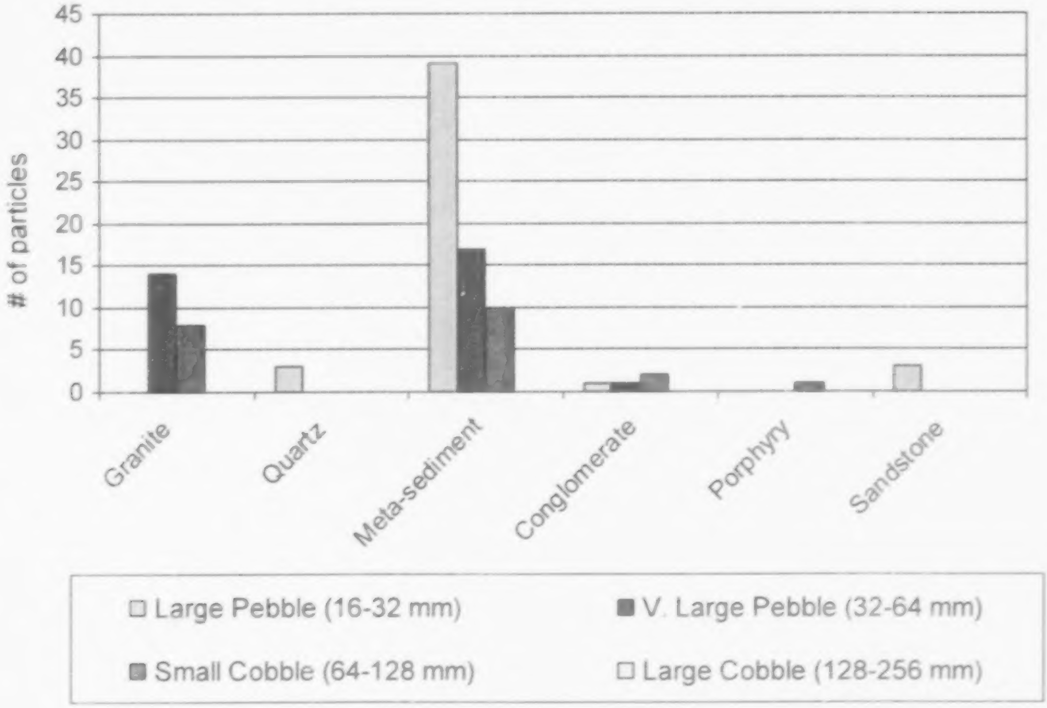
Rock Type:

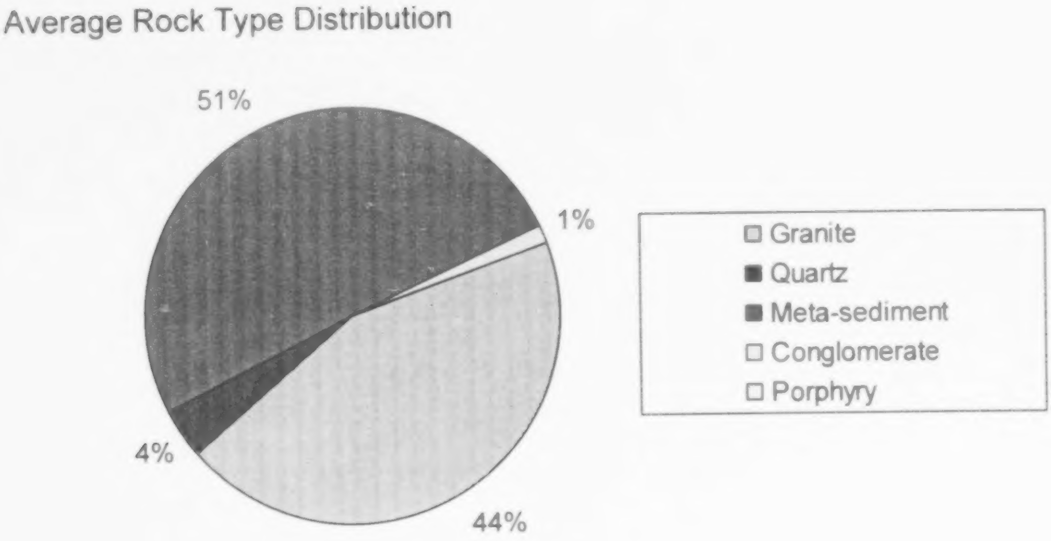
Number of Different Textural Types

Sample # TW-092-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size





Comments: Very sandy to pebbly material with a fairly high proportion of granitic material. Considered to have a moderate to low (48%) potential for high valued decorative applications (see Appendix D).

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Rocky Brook Lake

Sample #: TW-093-01 **Year:** 2001

Location: NTS: 21 J/07 County: York

Latitude: 46° 227.453” Longitude: 66° 55.960”

Zone: 19 UTM Northing: 5137800 UTM Easting: 659000

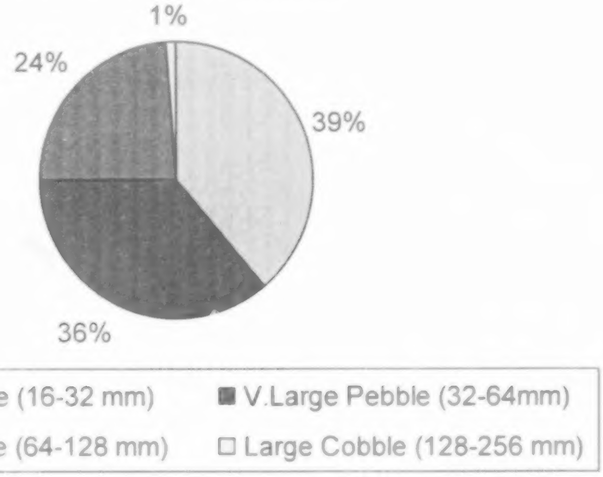
Description: A small (1-2 ha) inactive pit, .75 km east of Rocky Brook Lake and 4 km south of Napadogan.

Particle Size Classification:

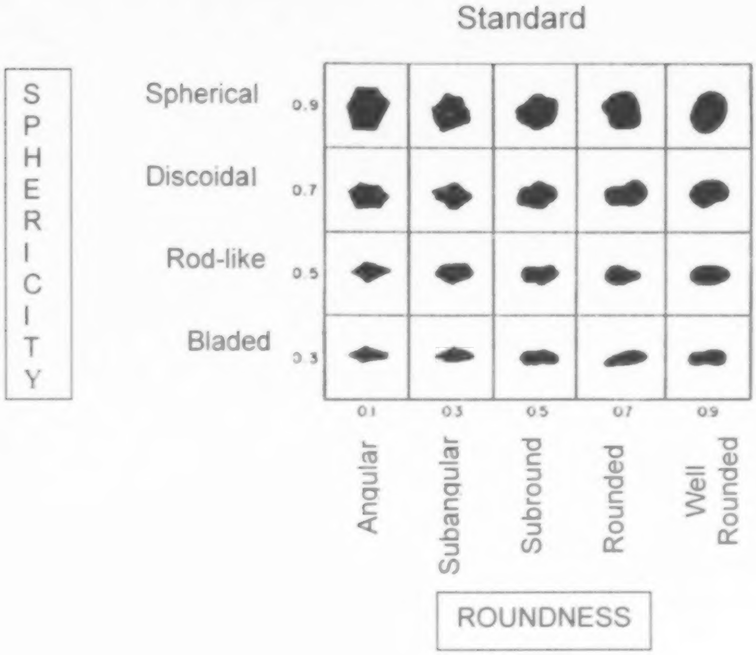
Pit–run Material

49 % clay, sand and small pebble (i.e. all material <25.4 mm or <1”)	**51 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1”)

Particle Size Classification for > 25.4mm Material

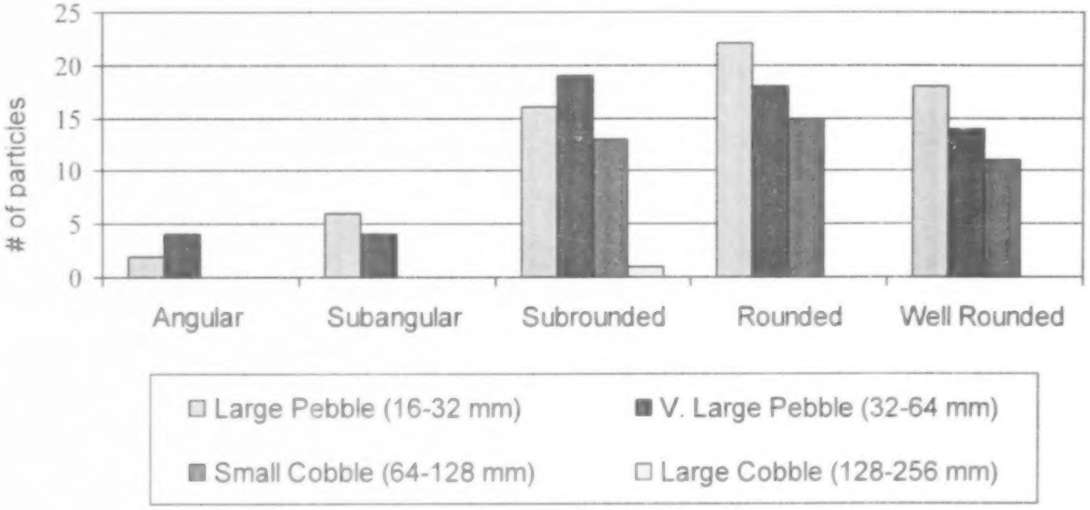


Roundness and Sphericity:



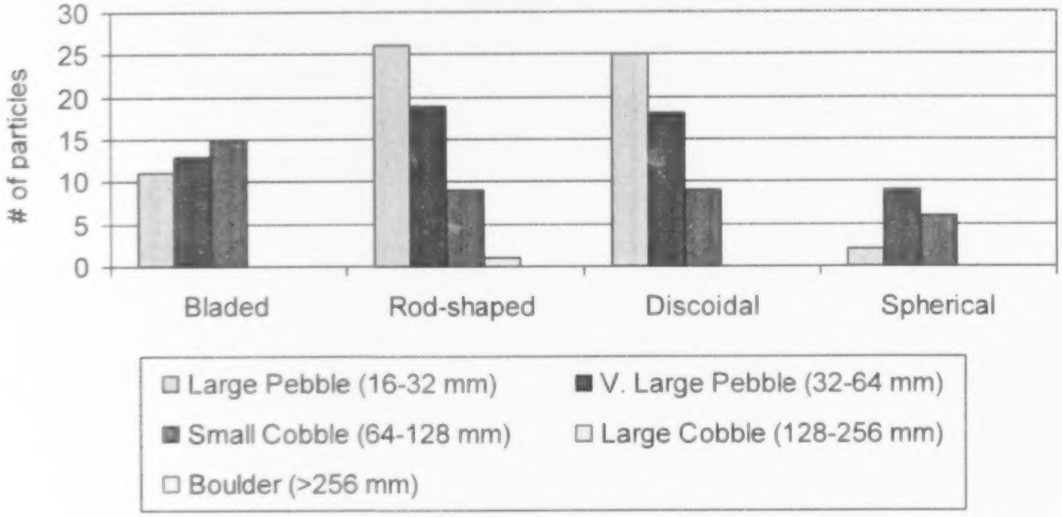
Roundness vs Particle Class Size

Sample # TW-093-01

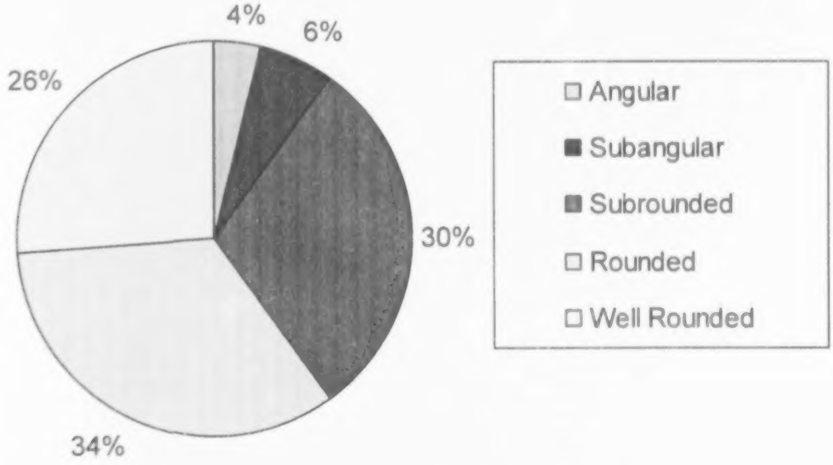


Sample # TW-093-01

Sphericity vs Particle Class Size

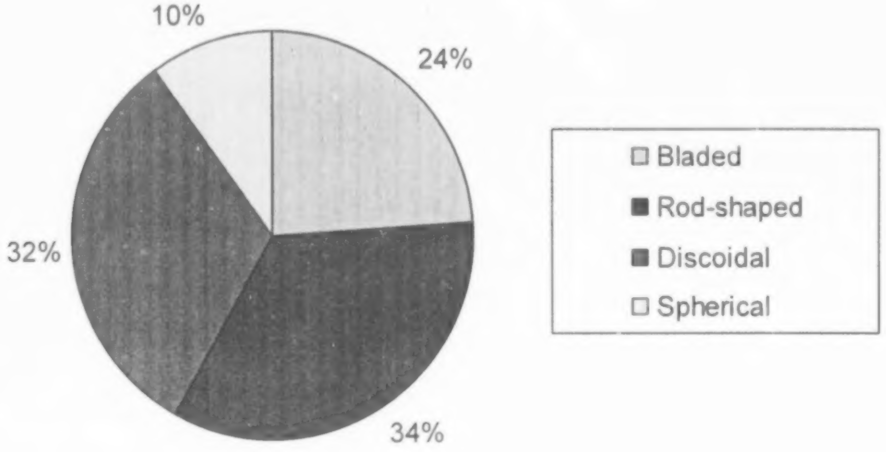


Average Roundness



Average = 0.65 (Rounded to Subrounded)
Standard deviation = 0.209

Average Sphericity



Average = 0.56 (Rod-shaped to Discoidal)
Standard deviation = 0.187

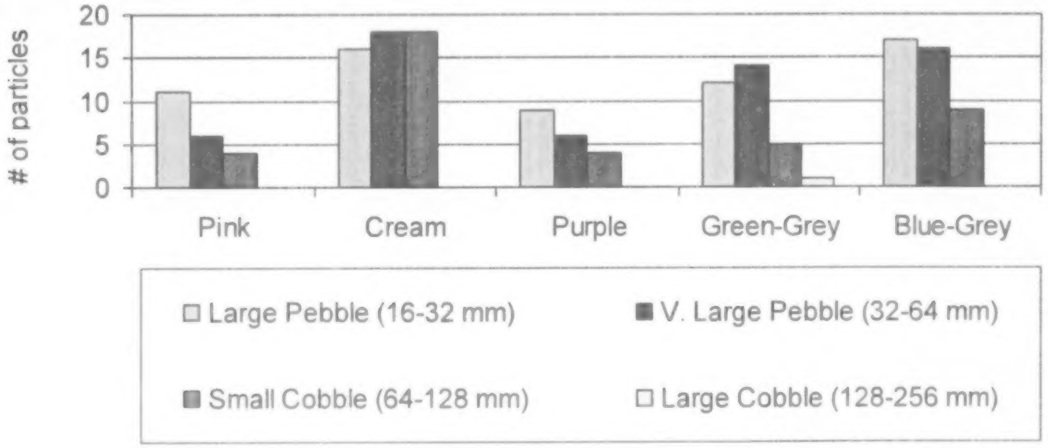
Color:

Sample # TW-093-01

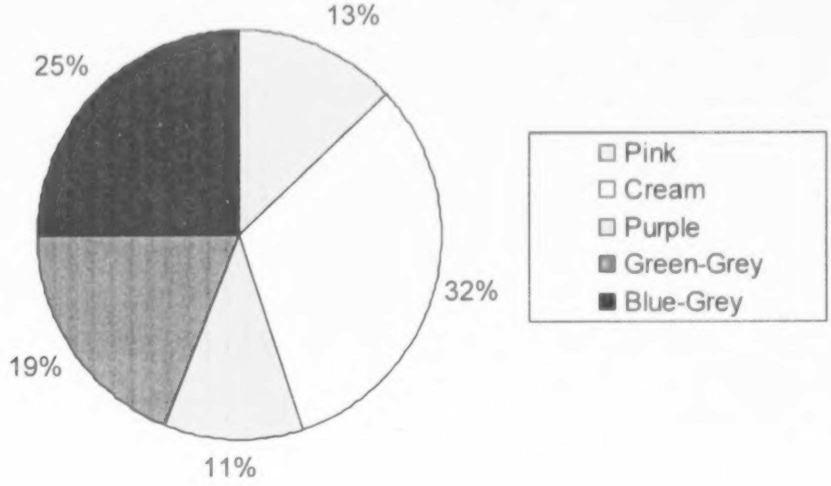
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
		X

Color Classification vs Particle Class Size



Average Color Distribution



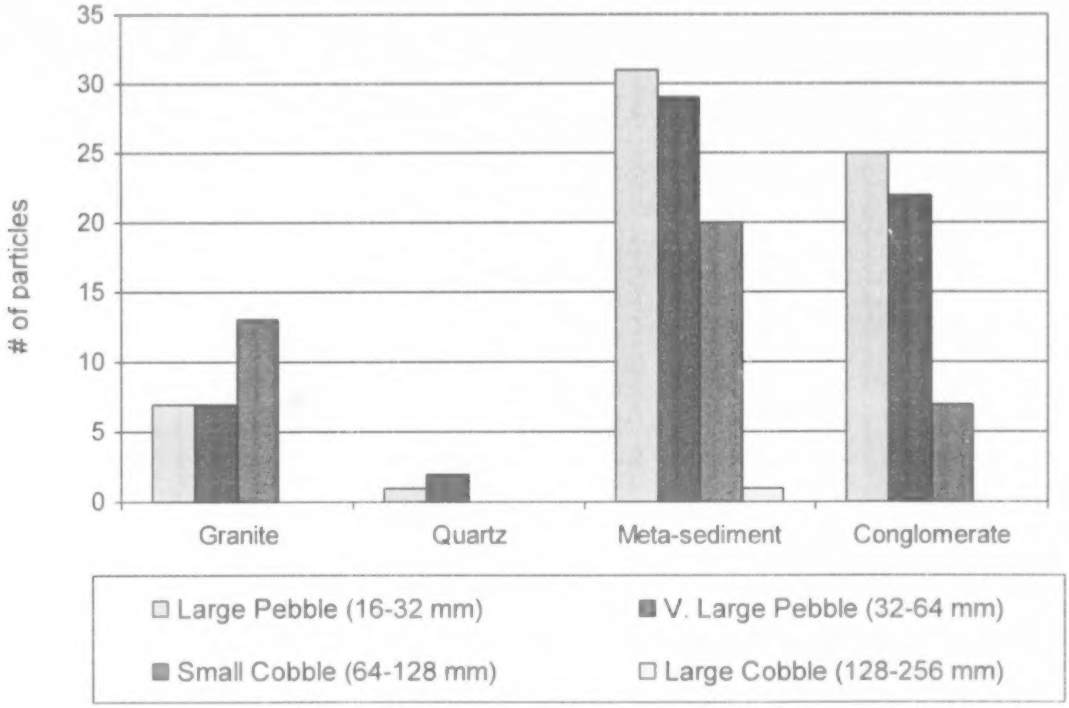
Rock Type:

Number of Different Textural Types

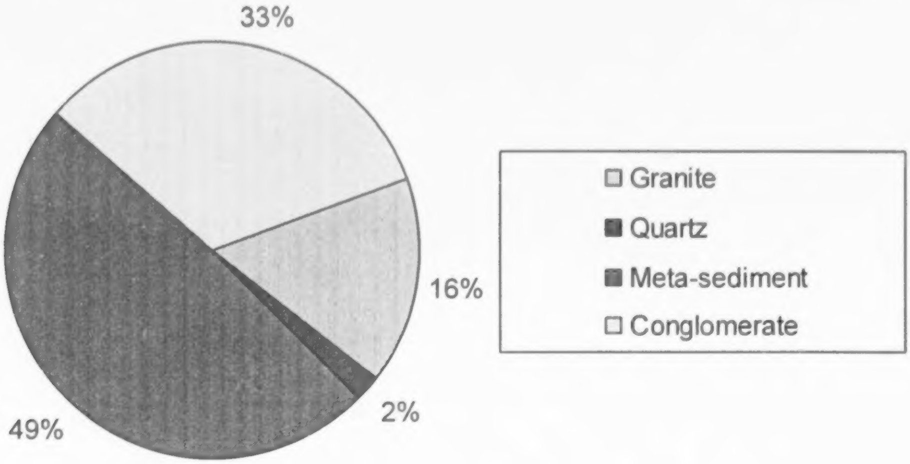
Sample # TW-093-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

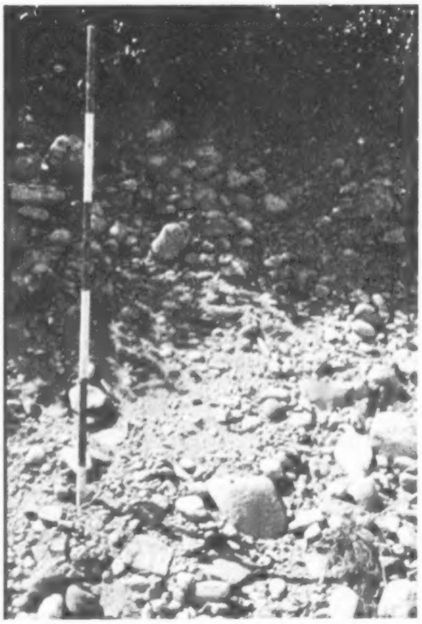
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-093-01



Pit face of insitu rounded, medium to very large pebble and cobble near Napadogan, northwestern York County, west-central New Brunswick.

Comments: Sampled material consisted of 50% medium to very large pebble and cobble. This pit site offers a good mix of subrounded, rounded and well rounded material of different color and texture but is rated at having only moderate potential (55%) (see Appendix D) for decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Miramichi Lake

Sample #: TW-094-01**Year:** 2001

Location: NTS: 21 J/07 County: York

Latitude: 46° 27.876" Longitude: 67° 00.937"

Zone: 19 UTM Northing: 5147400 UTM Easting: 652100

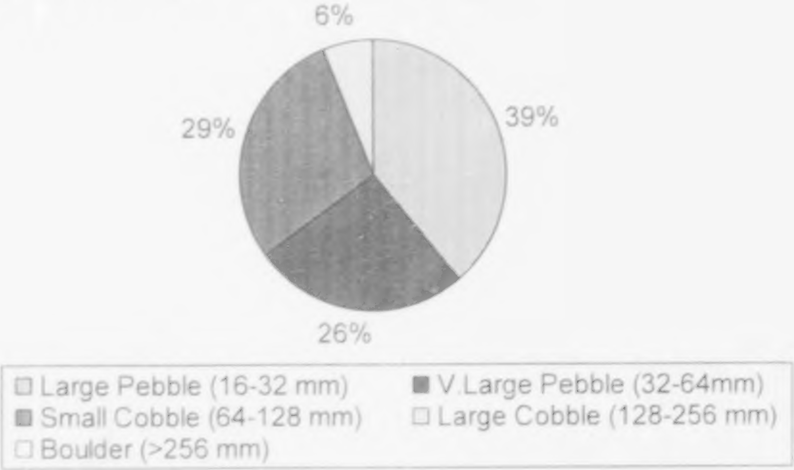
Description: A large (> 4 ha), west and adjacent Hwy #107, 7.5 km northwest of Napadogan and 1.5 km west of Miramichi Lake.

Particle Size Classification:

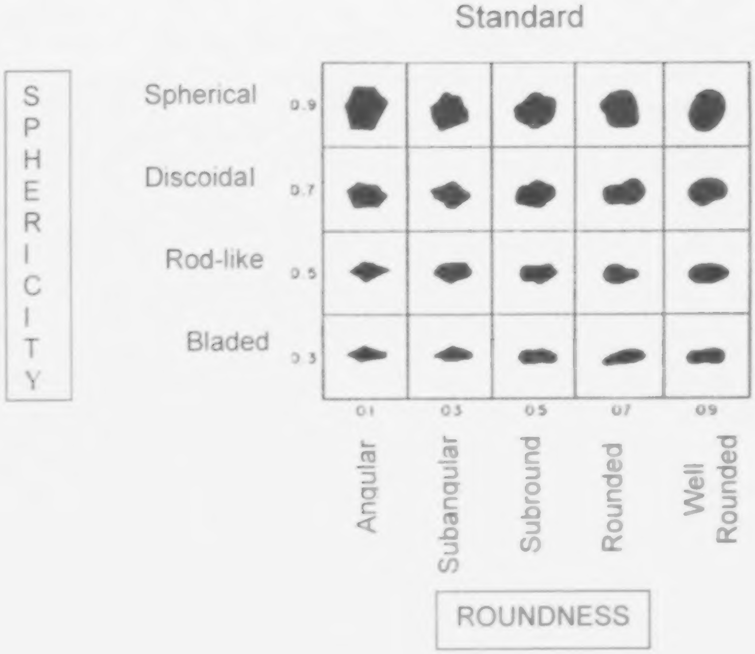
Pit–run Material

18 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**82 %** medium to very large pebble, cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

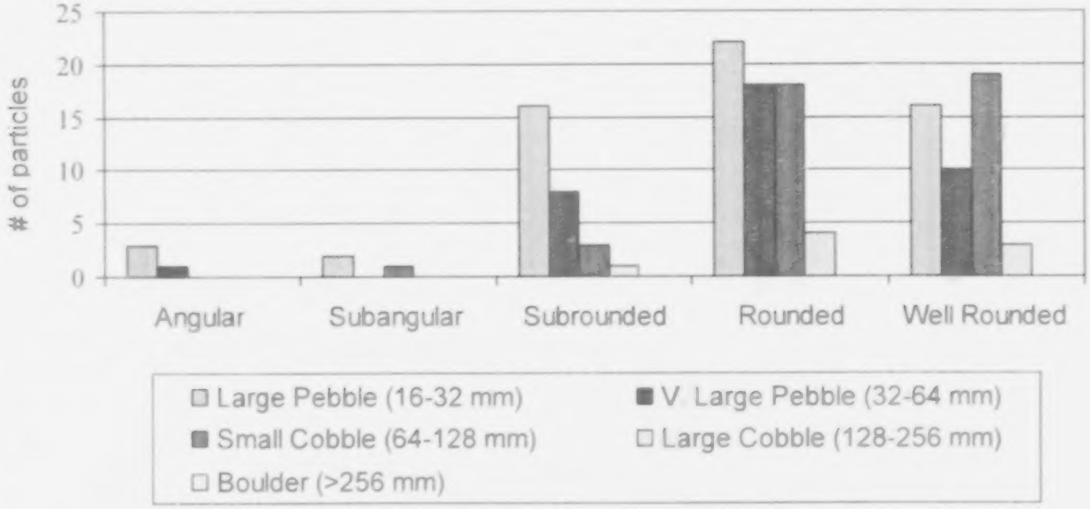


Roundness and Sphericity:



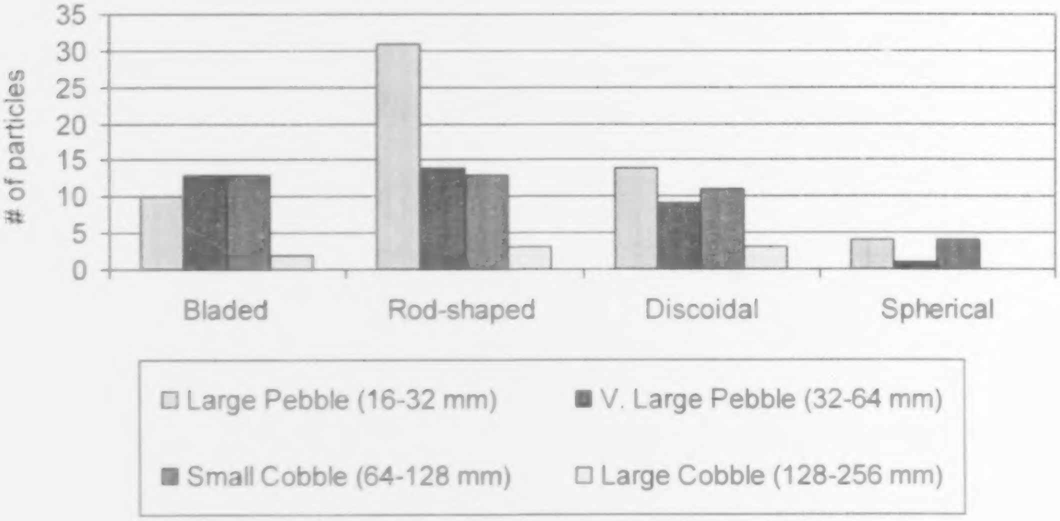
Roundness vs Particle Class Size

Sample # TW-094-01

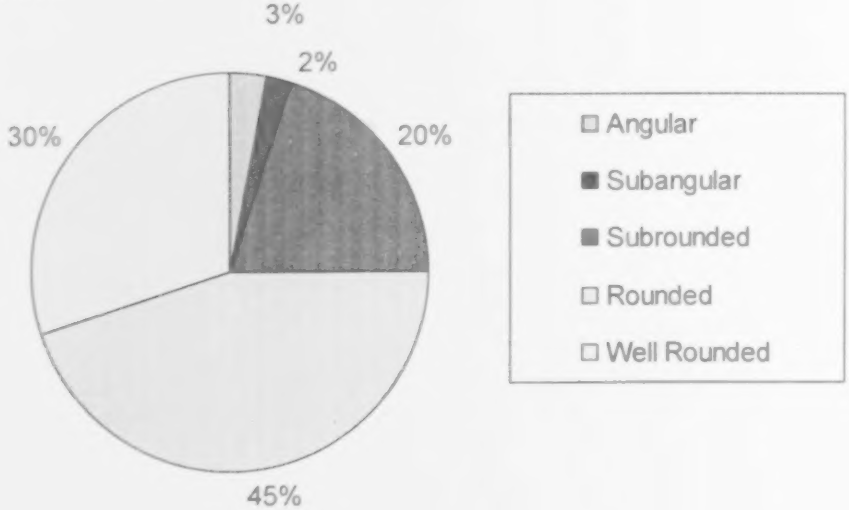


Sample # TW-094-01

Sphericity vs Particle Class Size

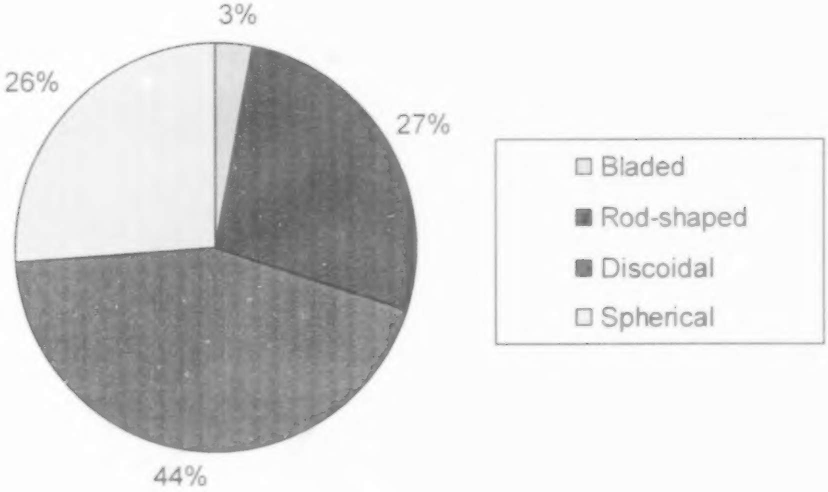


Average Roundness



Average = 0.70 (Rounded to Well Rounded)
Standard deviation = 0.184

Average Sphericity



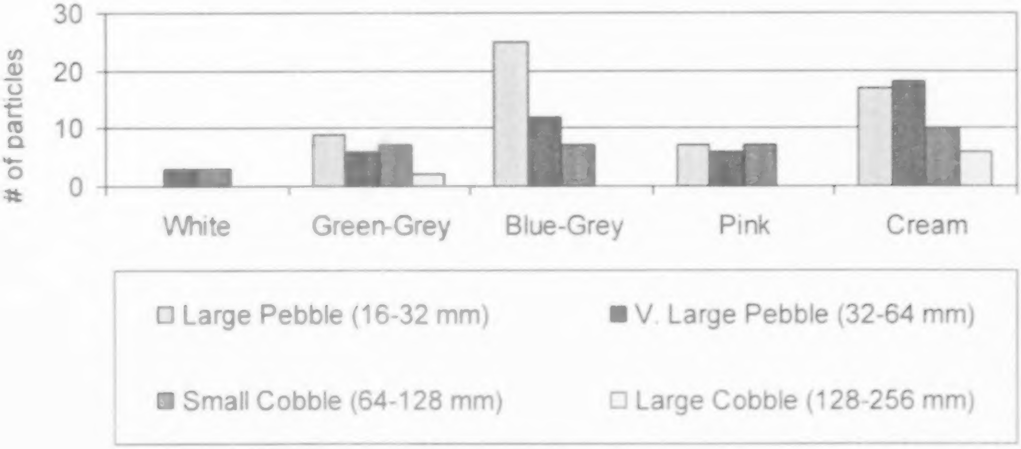
Average = 0.52 (Discoidal to Rod-shaped)
Standard deviation = 0.174

Color:

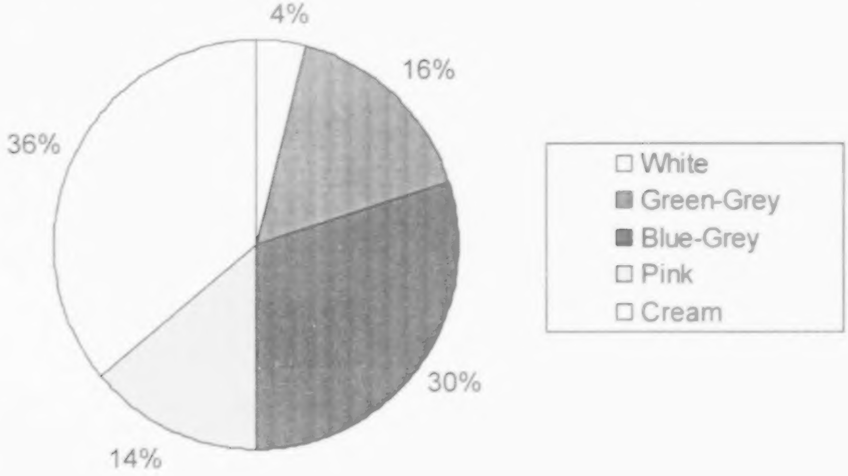
Sample # TW-094-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



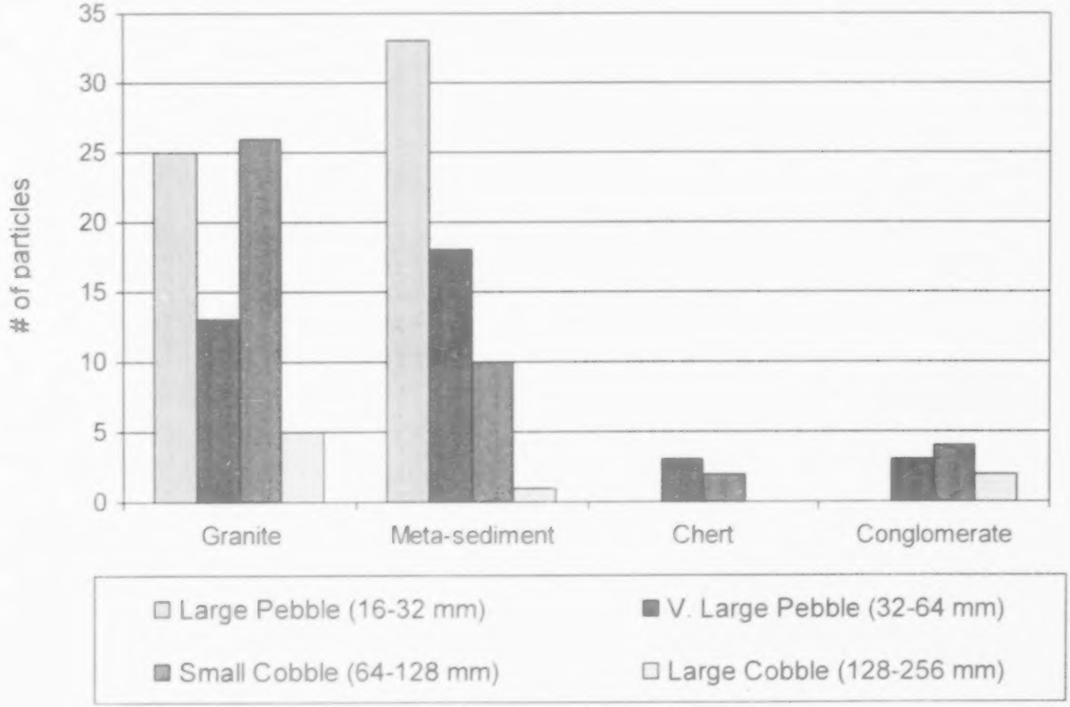
Rock Type:

Number of Different Textural Types

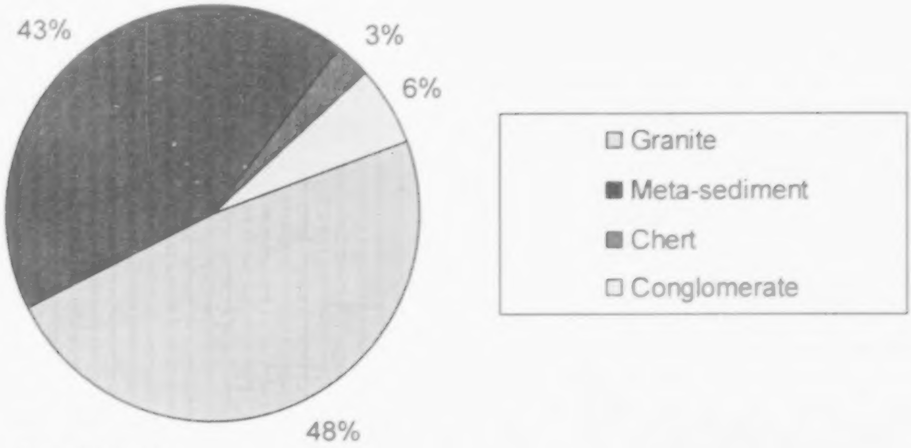
Sample # TW-094-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

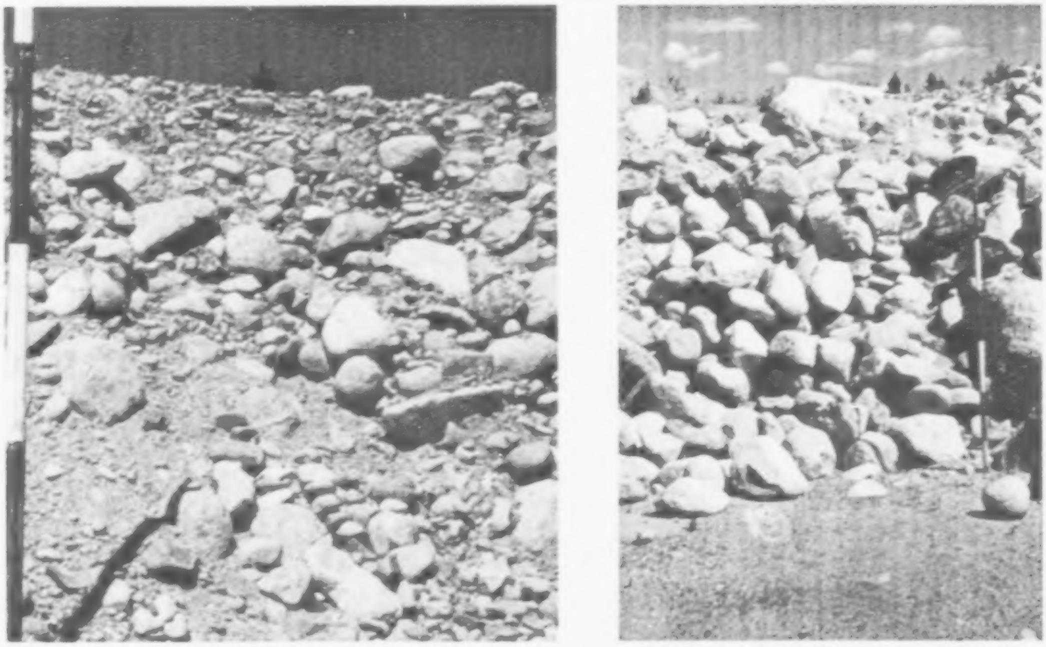
Rock Type vs Particle Class Size



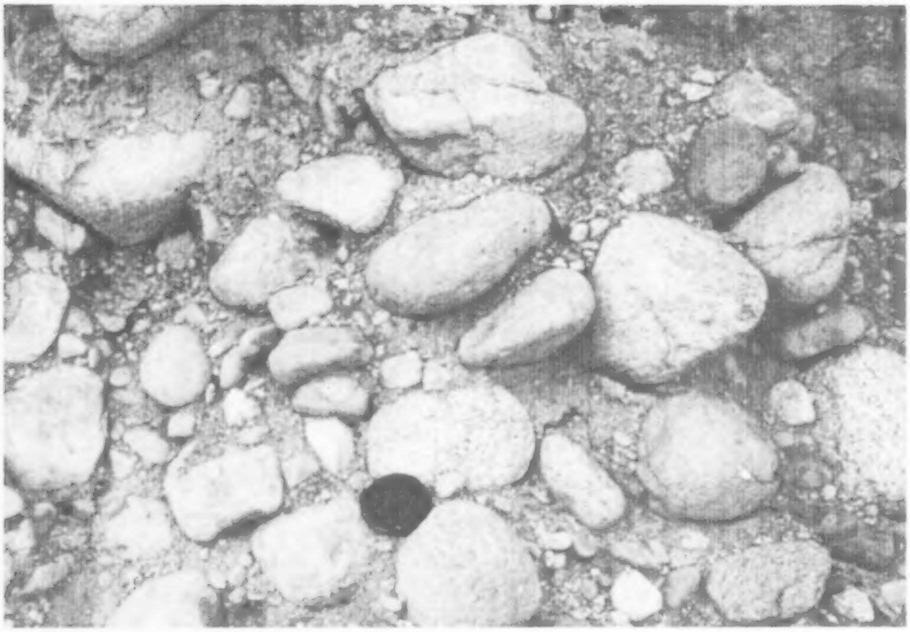
Average Rock Type Distribution



Sample # TW-094-01



Large pebble to large cobble granite and meta-sedimentary rock material exposed in an extensive pit a few km west of Miramichi Lake, northwest of Napadogan, northwestern part of York County, west-central New Brunswick.



Pit face displaying large pebbles to large cobbles of granite and meta-sedimentary rock material situated a few km west of Miramichi Lake, northwest of Napadogan, northwestern part of York County, west-central New Brunswick.

Comments: Site offers high to moderate potential (80%) (see Appendix D) for large pebble to very large cobble and boulders. Material is rounded to well rounded, with a good mix shapes (i.e. discoidal to spherical) color and texture. Granite appears the most predominant rock type with some displaying a rather unique augen texture (pink and black banding). The extent and quality of the resource would however, require some work.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Devils Back Brook

Sample #: TW-097-01 **Year:** 2001

Location: NTS: 21 J/16 County: Northumberland

Latitude: 46° 51.058" Longitude: 67° 02.381"

Zone: 19 UTM Northing: 5192700 UTM Easting: 625750

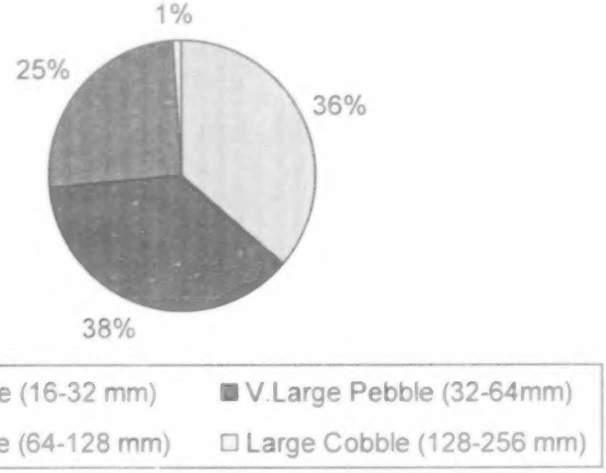
Description: A large (> 3-4 ha) pit near the intersection of Hwy #3, Renous Highway (Hwy #108) and Hwy #420, north and adjacent the Renous Highway.

Particle Size Classification:

Pit–run Material

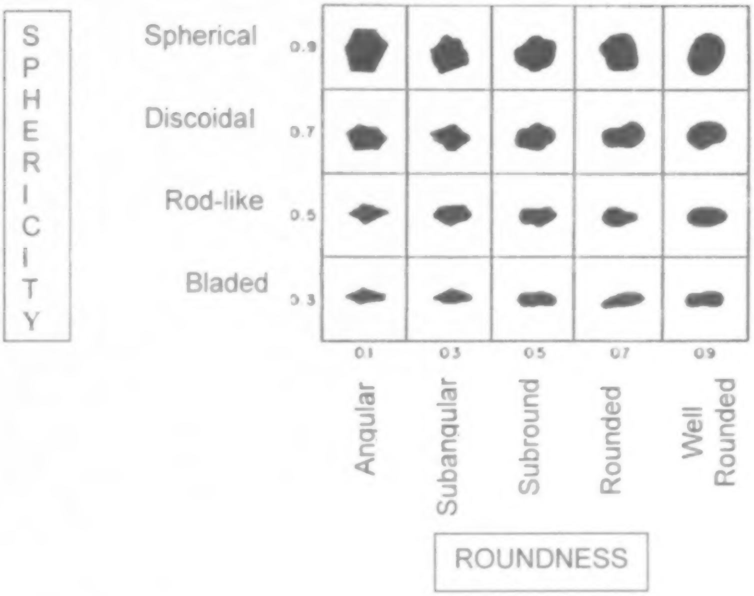
48 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**52 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material



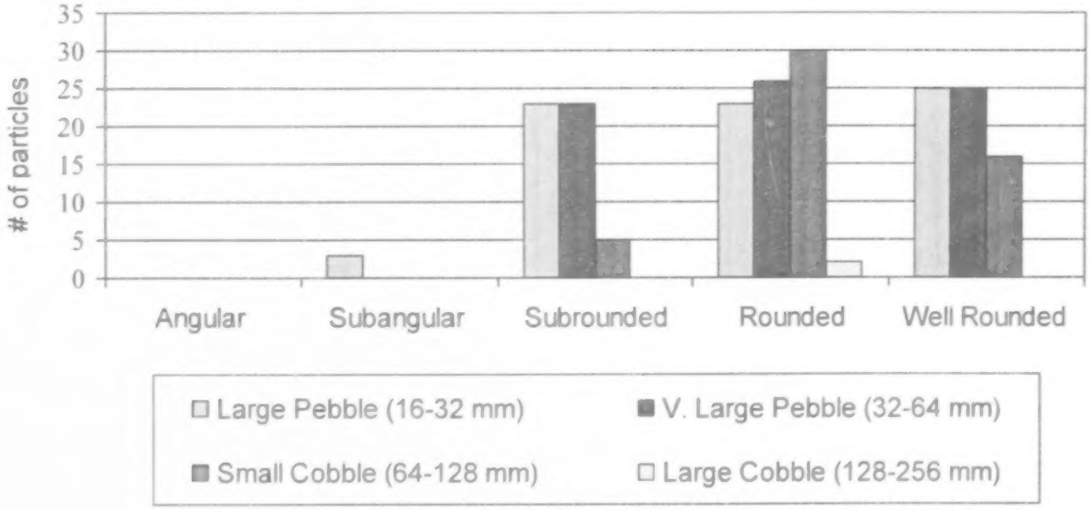
Roundness and Sphericity:

Standard



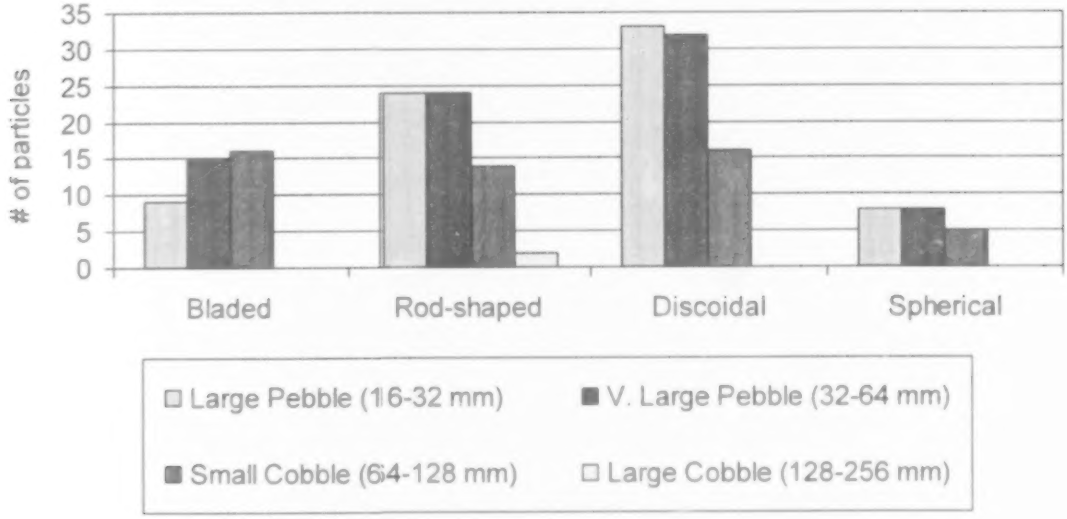
Roundness vs Particle Class Size

Sample # TW-097-01

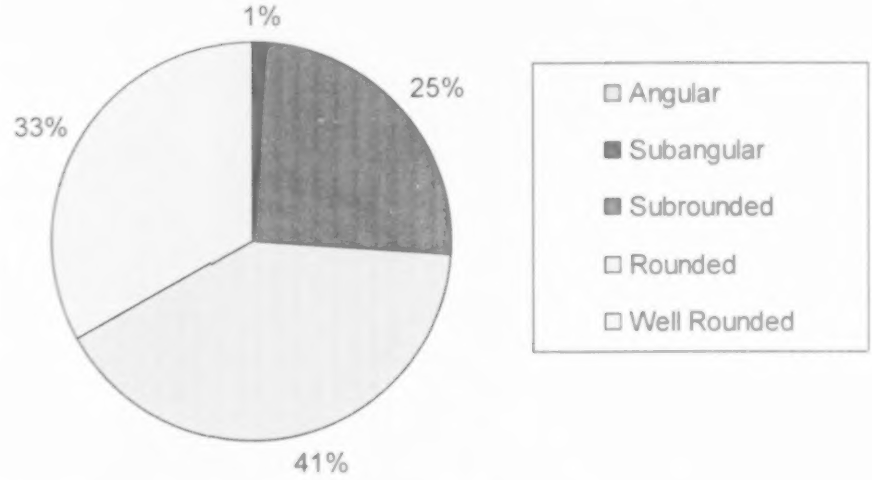


Sample # TW-097-01

Sphericity vs Particle Class Size

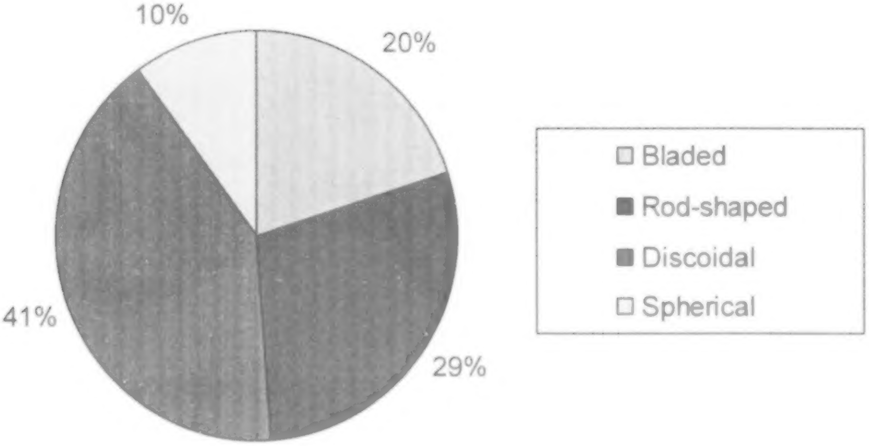


Average Roundness



Average = 0.72 (Rounded to Well Rounded)
Standard deviation = 0.159

Average Sphericity



Average = 0.58 (Discoidal to Rod-shaped)
Standard deviation = 0.184

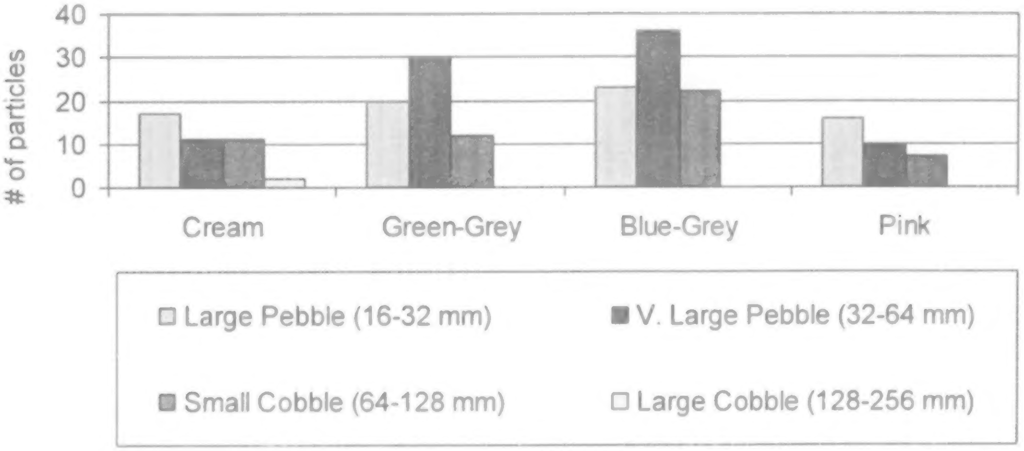
Color:

Sample # TW-097-01

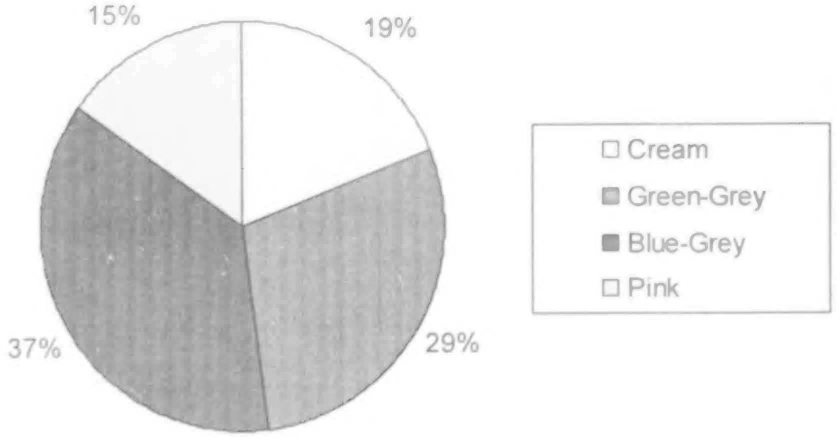
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



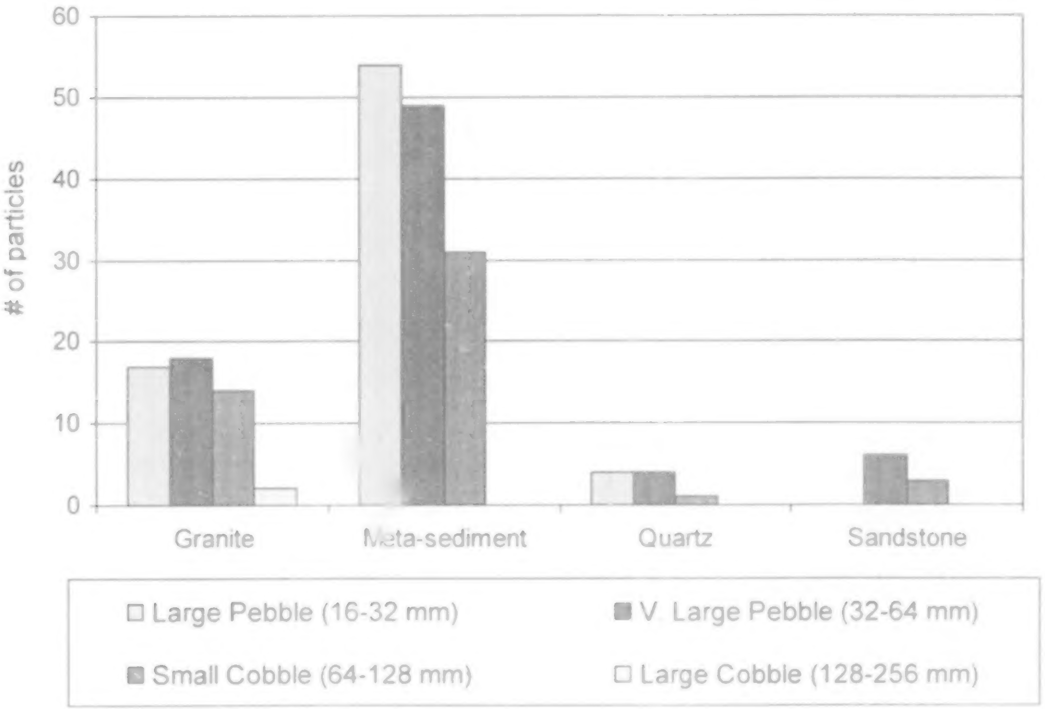
Rock Type:

Number of Different Textural Types

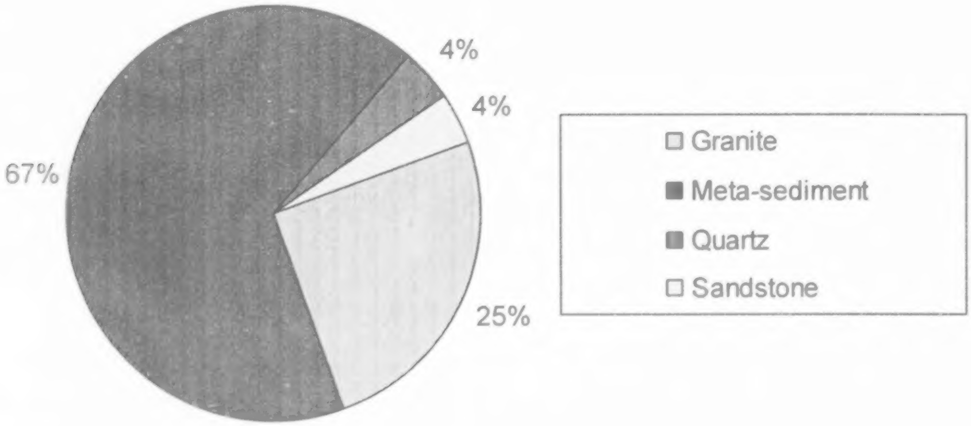
Sample # TW-097-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample TW-097-01

Typical pit face displaying pebble and small cobble material near Devil Back Brook, 8 km northeast of McGraw Brook, central part of Northumberland County, north-central New Brunswick.

Scree pile large pebble to small cobble granite and meta-sedimentary rock near Devil Back Brook, 8 km northeast of McGraw Brook, central part of Northumberland County, north-central New Brunswick.

Comments: A moderate potential (65%) (see Appendix D) source of well rounded, pink and cream colored pebbles and small cobbles of granite with contrasting grey-colored meta-sedimentary rocks. Resource appears extensive but is occupied by large blueberry fields to the north of existing pit site.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Renous Forks

Sample #: TW-098-01 **Year:** 2001

Location: NTS: 21 J/16 County: Northumberland

Latitude: 46° 47.819" Longitude: 67° 10.706"

Zone: 19 UTM Northing: 5186900 UTM Easting: 615450

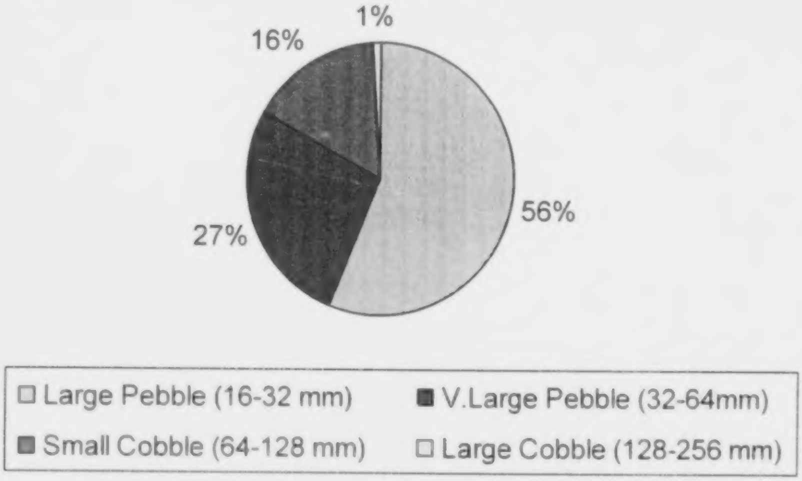
Description: A very large (> 5 ha) active pit on north bank of Renous River, 0.75 km north of its confluence with the North Branch of the Renous River and 4.5 km west of McGraw Brook and 600 m south of Hwy # 108 (the Renous Highway).

Particle Size Classification:

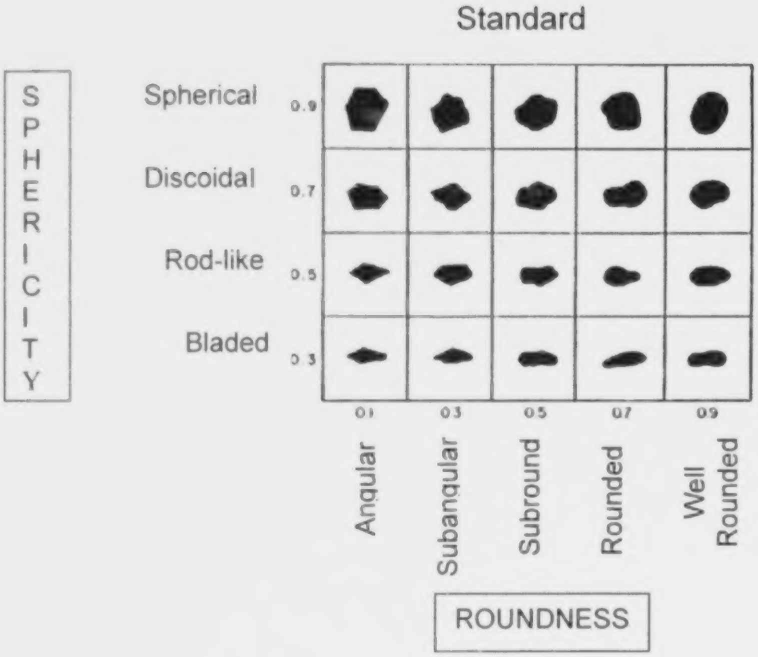
Pit–run Material

37 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**63 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

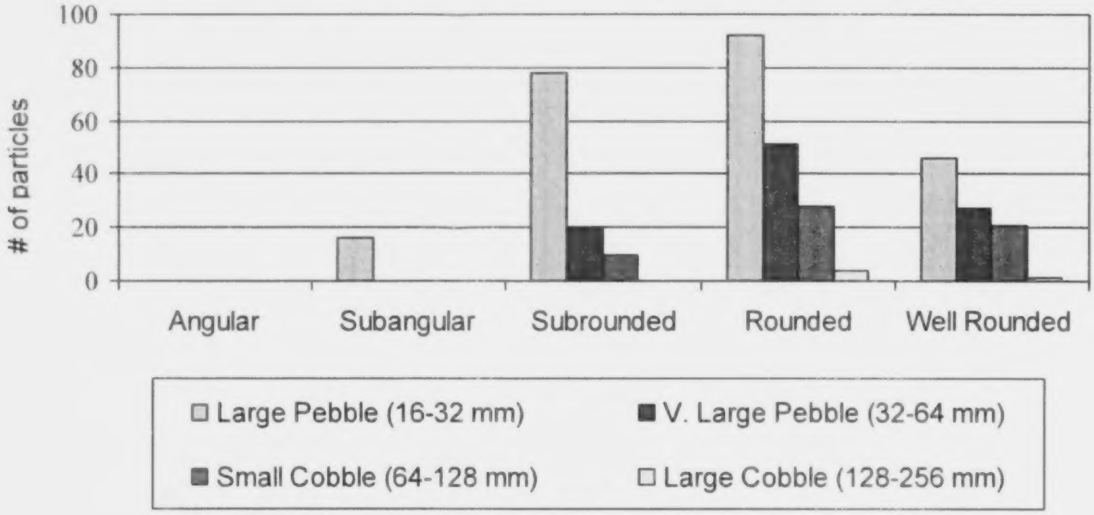


Roundness and Sphericity:



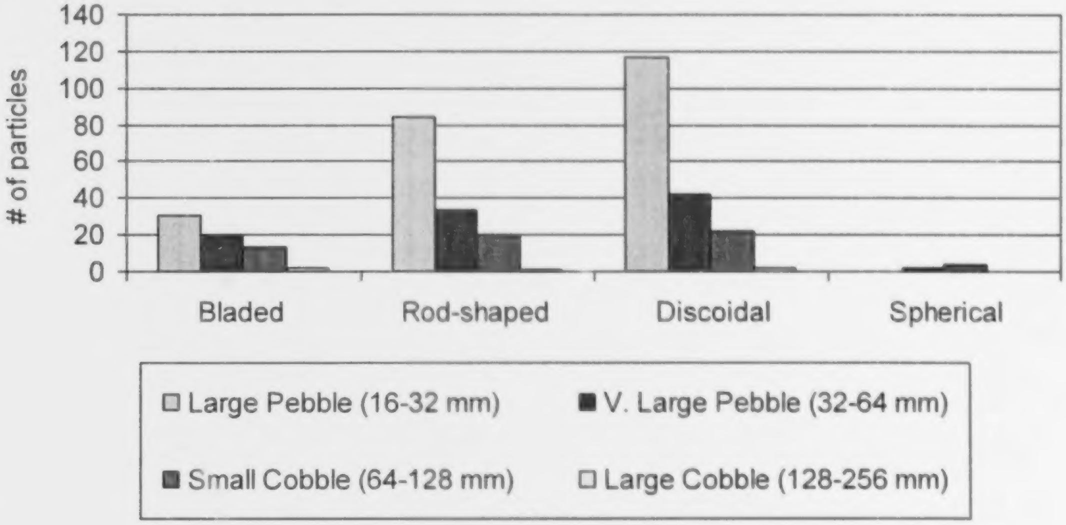
Roundness vs Particle Class Size

Sample # TW-098-01

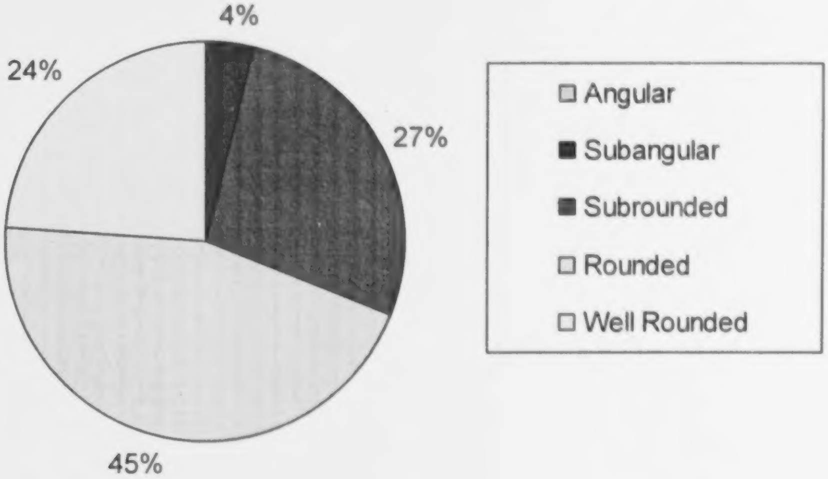


Sample # TW-098-01

Sphericity vs Particle Class Size

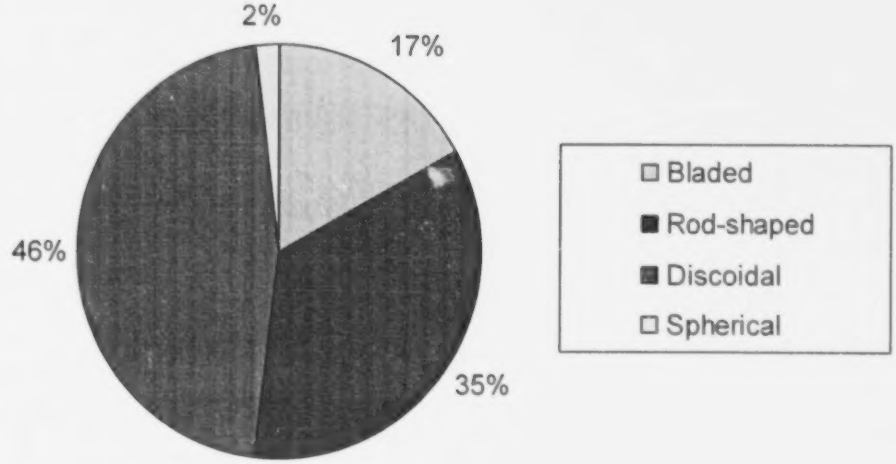


Average Roundness



Average = 0.57 (Rounded to Subrounded)
Standard deviation = 0.153

Average Sphericity



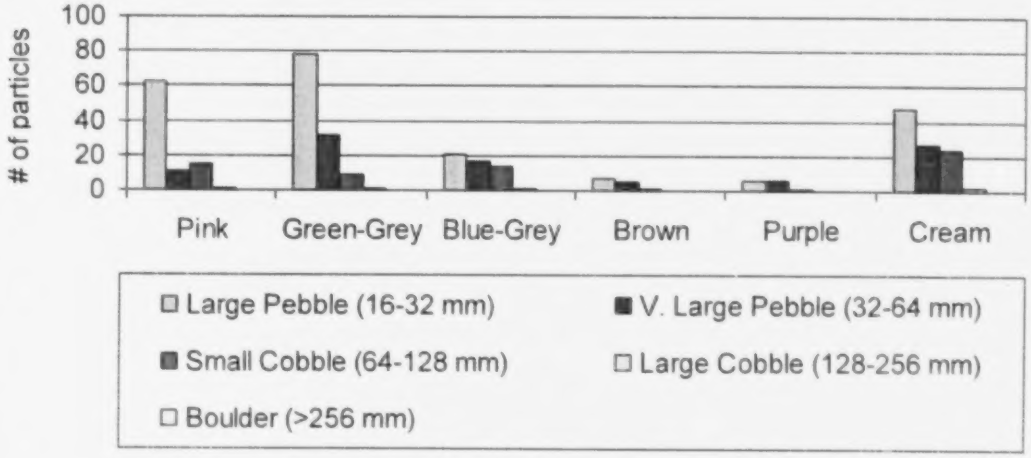
Average = 0.68 (Discoidal to Rod-shaped)
Standard deviation = 0.164

Color:

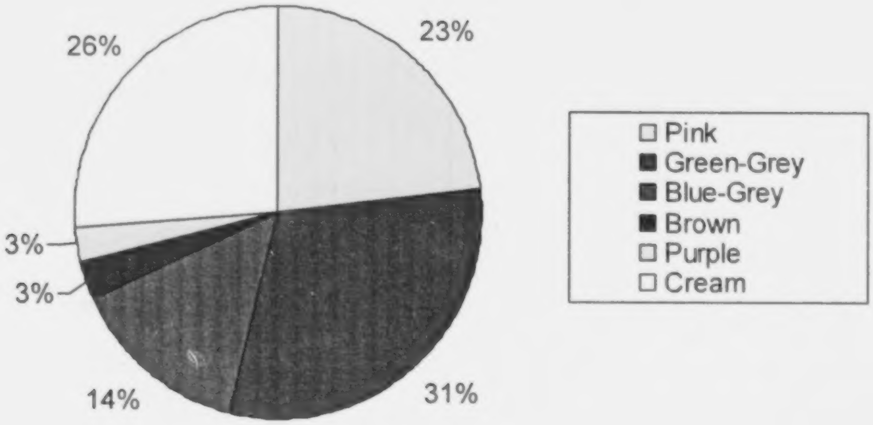
Sample # TW-098-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



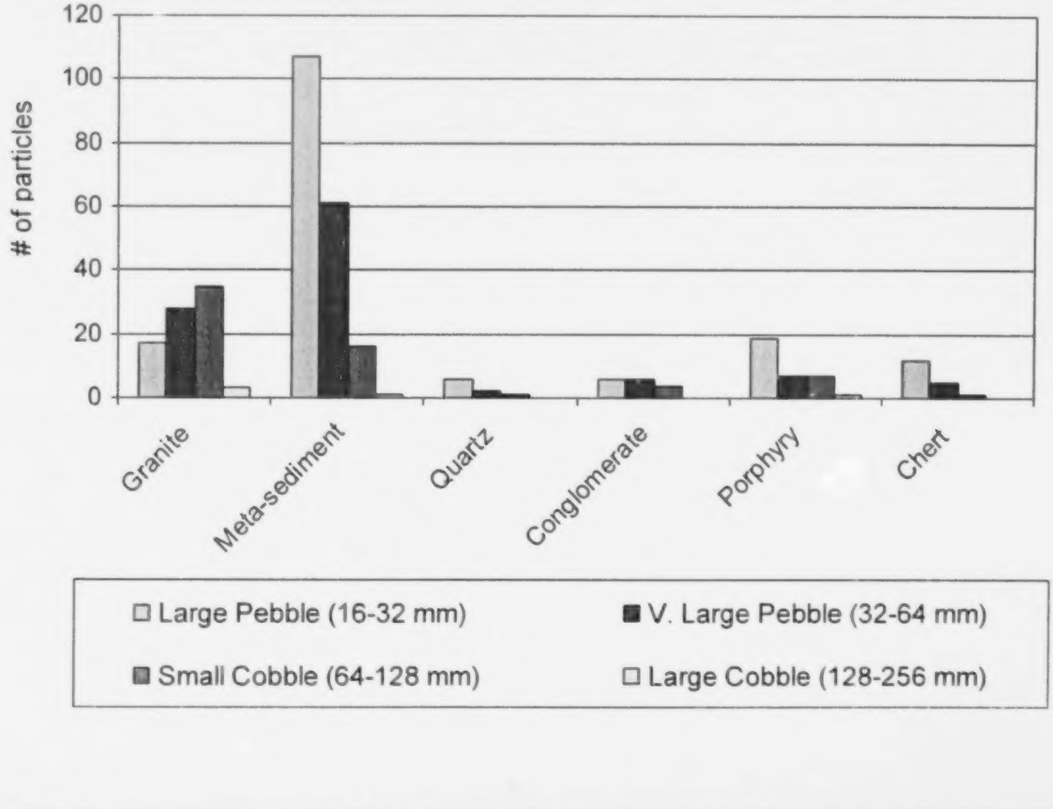
Rock Type

Number of Different Textural Types

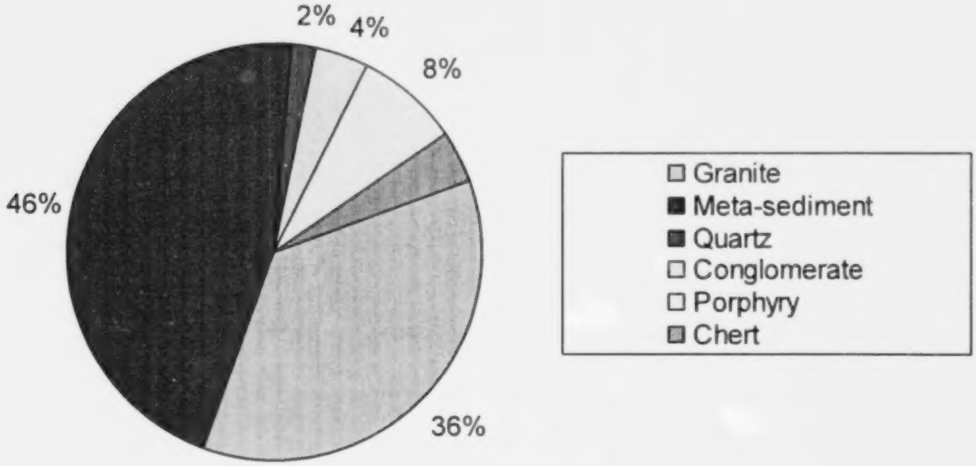
Sample # TW-098-01

Limited (<2)	Several (2-4)	Many (>4)
		X

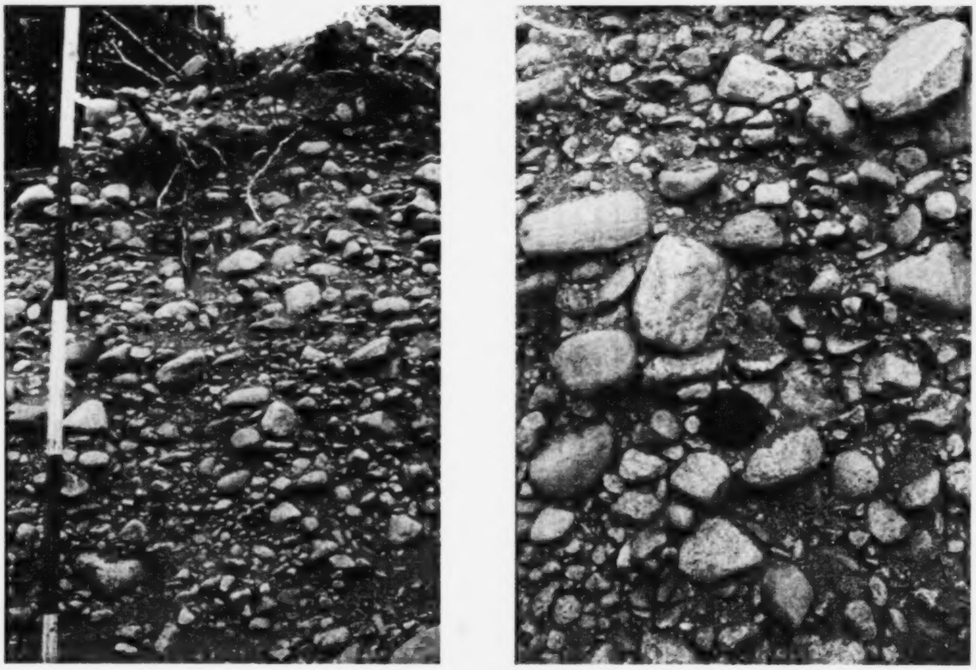
Rock Type vs Particle Class Size



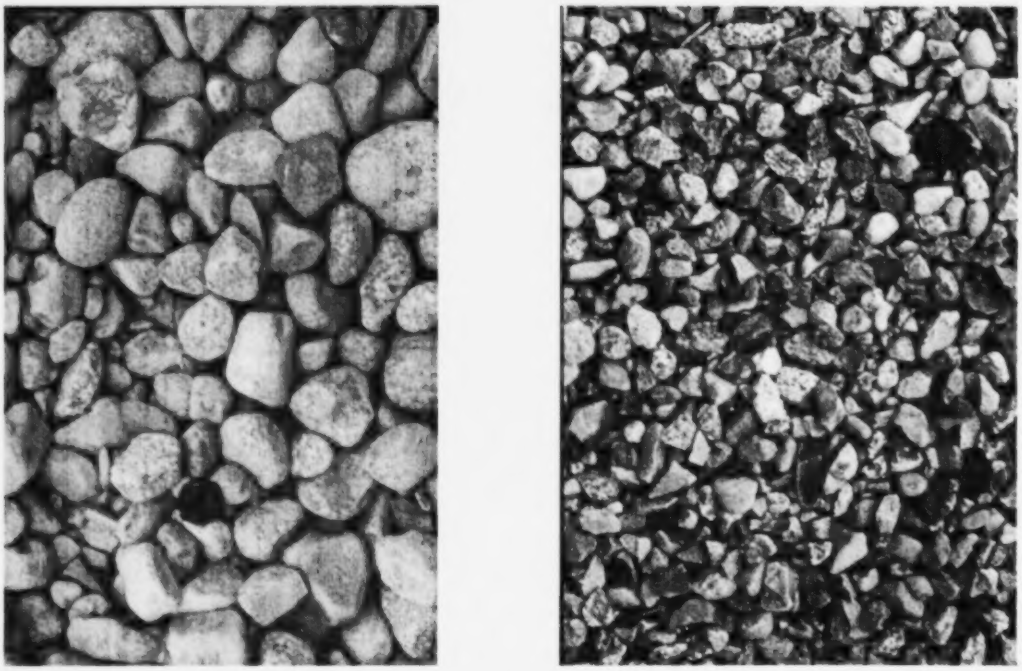
Average Rock Type Distribution



Sample # TW-098-01



Typical pit face showing the nature of large pebble to small cobble granite and meta-sedimentary rock materials near confluence of the South and North Branch of the Renous rivers, 5 km west of McGraw Brook, central part of Northumberland County, north-central New Brunswick.



Typical scree pile (left) and crushed material (right) featuring, colorful, rounded, granite and meta-sedimentary rock pebble to cobble near confluence of the South and North Branch of the Renous rivers, 5 km west of McGraw Brook, central part of Northumberland County, north-central New Brunswick. (note: crushed large pebble-sized material in the right photo).

Comments: Considered as having moderate potential (63%) as a source of rounded, large to very large pebble and cobble. Color and textural contrasts appear quite appealing, particularly when material is wet or dampened. This is part of a large resource extending several km adjacent the South Branch of the Renous River. The rather remote location of the site lowers its overall rating potential but the high quality of material is worthy of development considerations.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: North Branch Renous River

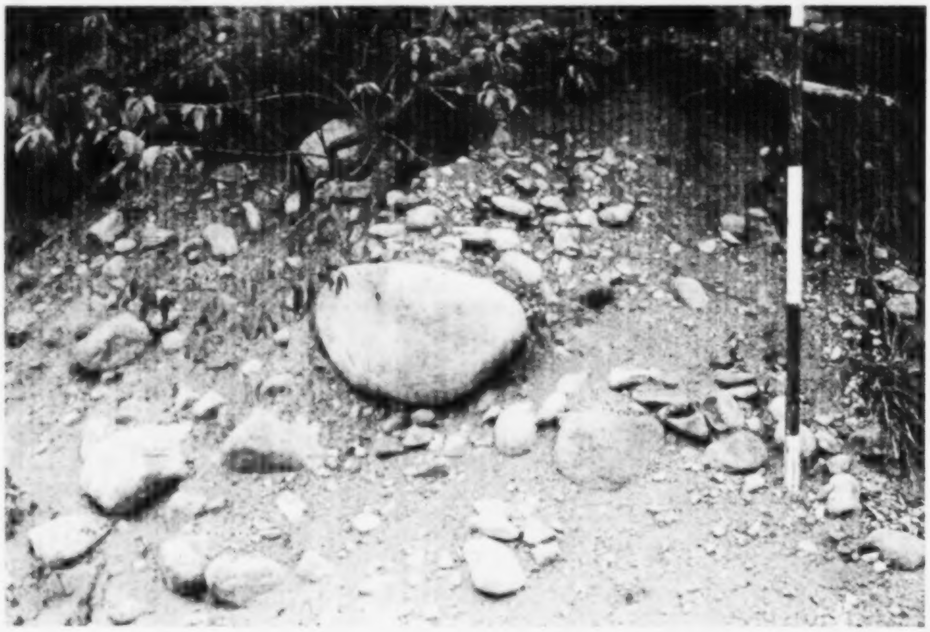
Sample #: TW-099-01 **Year:** 2001

Location: NTS: 21 J/15 County: Northumberland

Latitude: 46° 47.736" Longitude: 66° 11.591"

Zone: 19 UTM Northing: 5186000 UTM Easting: 714 00

Description: A small (1-2 ha) inactive pit, .a few meters north of the where North Branch Renous River crosses Hwy #108 (the Renous Highway).



Pit face displaying pebble to cobble to boulder-size material, from a small pit north of the confluence of the South and North Branch of the Renous rivers, 7 km west of McGraw Brook, central part of Northumberland County, north-central New Brunswick. Similar to sample site TW-098-01.

Comments: Very accessible, inactive pit with unqualified (moderate?) potential for material of variable-size (pebble to cobble to boulder), multi-color and diverse textures. This site is part of a large resource that extends to the south and east, adjacent the South Branch Renous River. Its rather remote location of the site lowers its rating potential but the quality of material appears similar to that found at the sample site TW-098-01.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: South Branch Dungarvon River

Sample #: TW-100-01 **Year:** 2001

Location: NTS: 21 J/15 County: Northumberland

Latitude: 46° 48.491" Longitude: 67° 37.588"

Zone: 19 UTM Northing: 5186450 UTM Easting: 681200

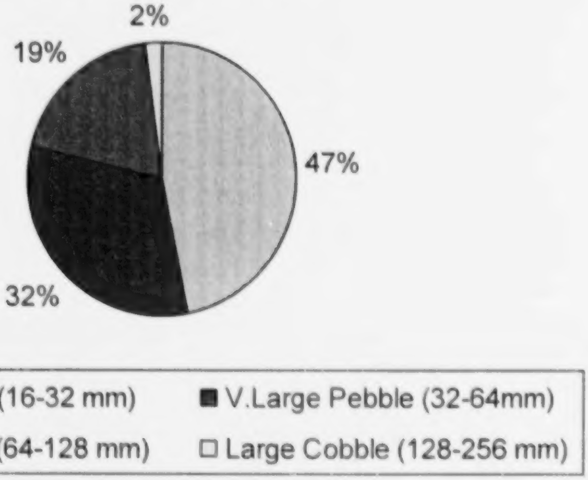
Description: A large (>3 ha) inactive pit, 0.75 km east of the South Branch Dungarvon River, 1.4 km south of the intersection of the Louis Lake-Pratt Camp Road and Hwy#108 (the Renous Highway).

Particle Size Classification:

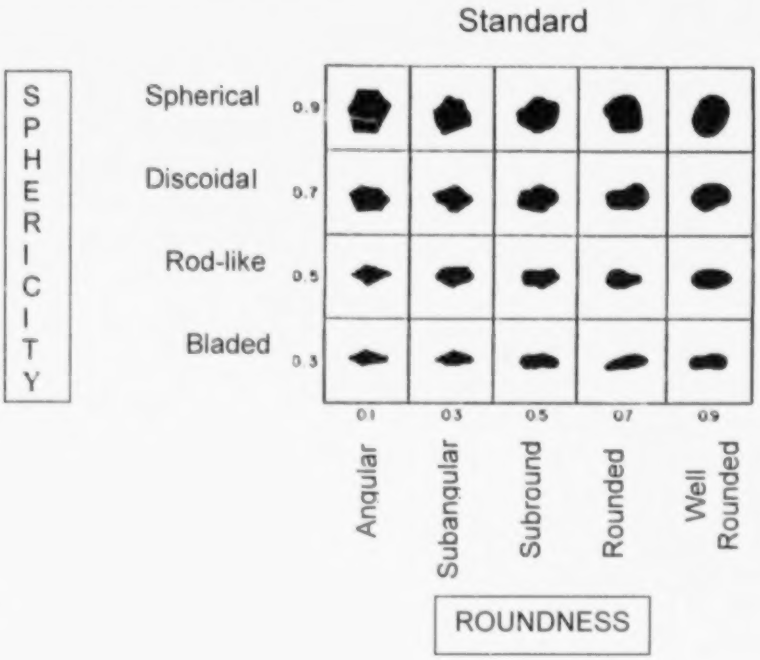
Pit–run Material

38 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**62 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

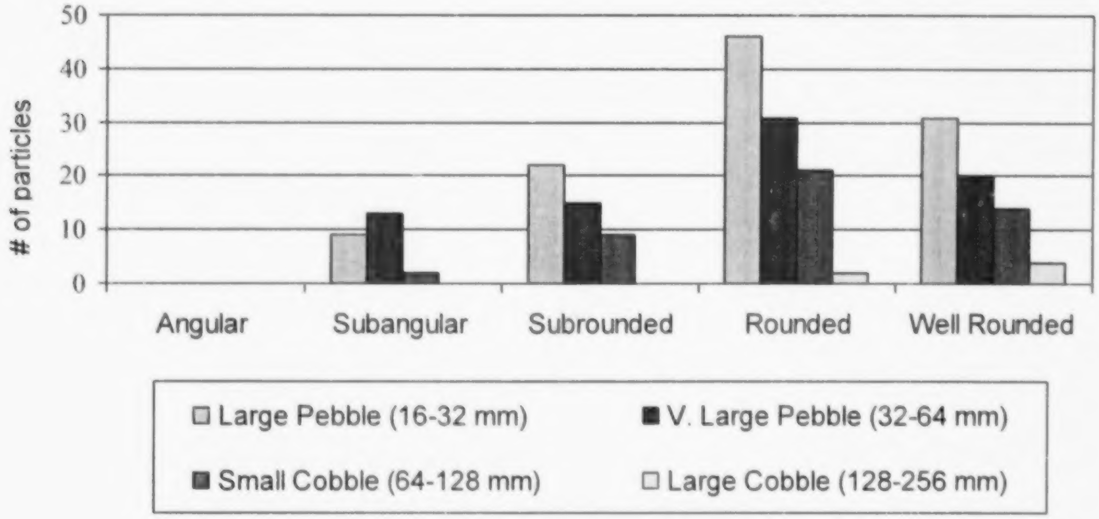


Roundness and Sphericity:



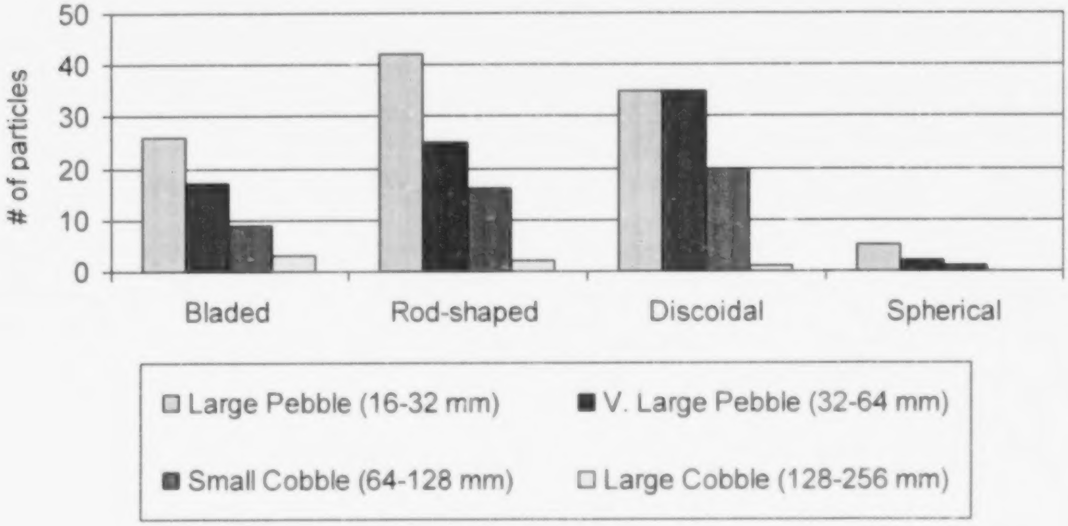
Roundness vs Particle Class Size

Sample # TW-100-01

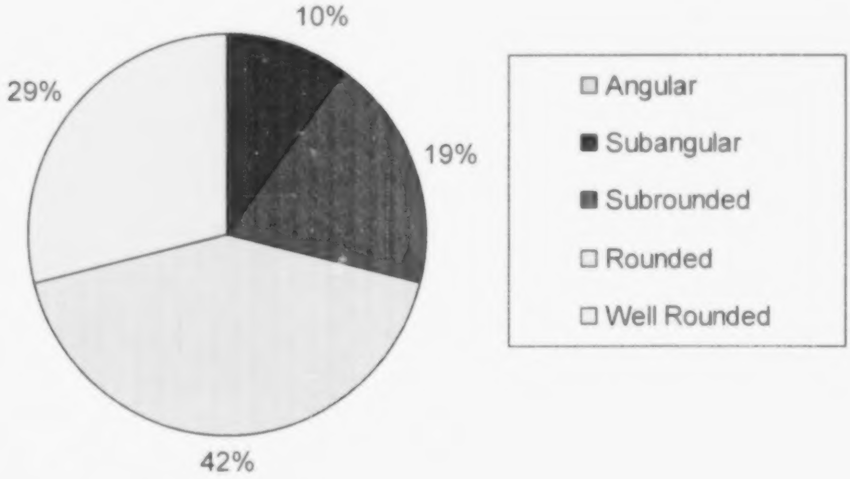


Sample # TW-100-01

Sphericity vs Particle Class Size

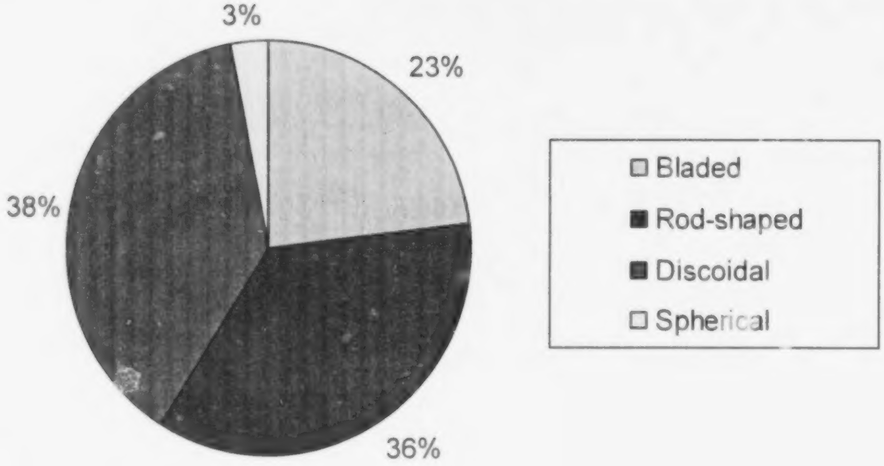


Average Roundness



Average = 0.72 (Rounded to Well Rounded)
Standard deviation = 0.165

Average Sphericity



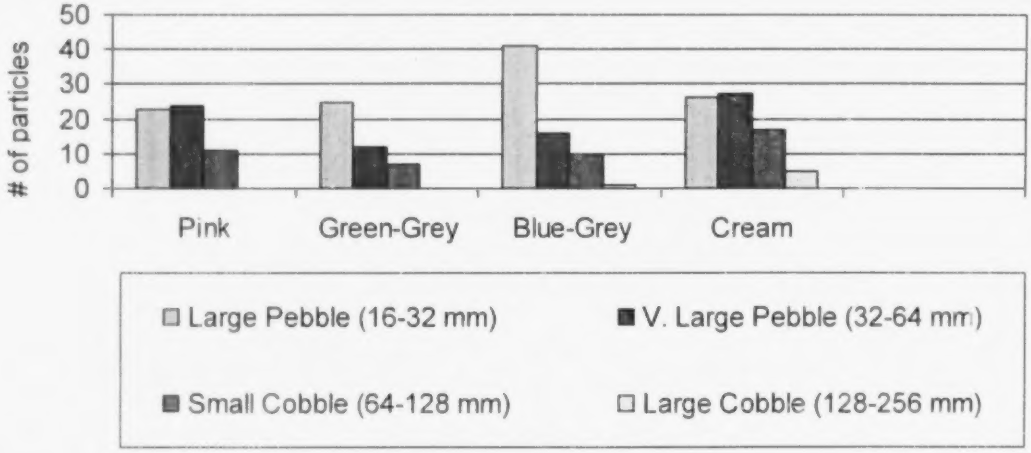
Average = 0.54 (Discoidal to Rod-shaped)
Standard deviation = 0.167

Color:

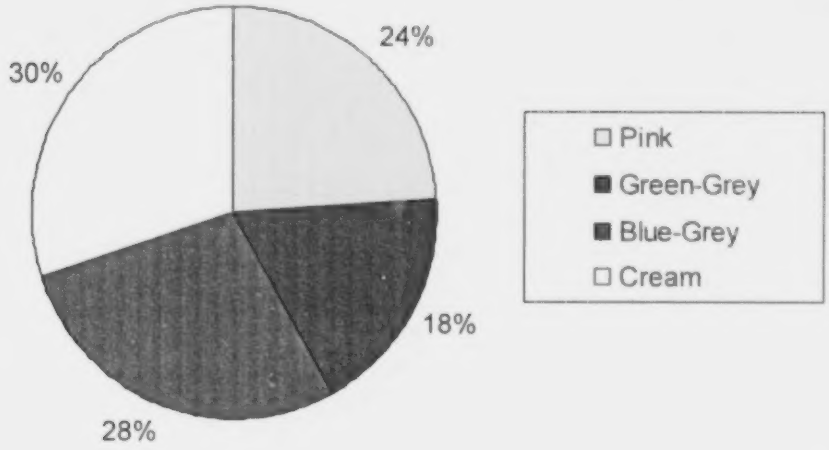
Sample # TW-100-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



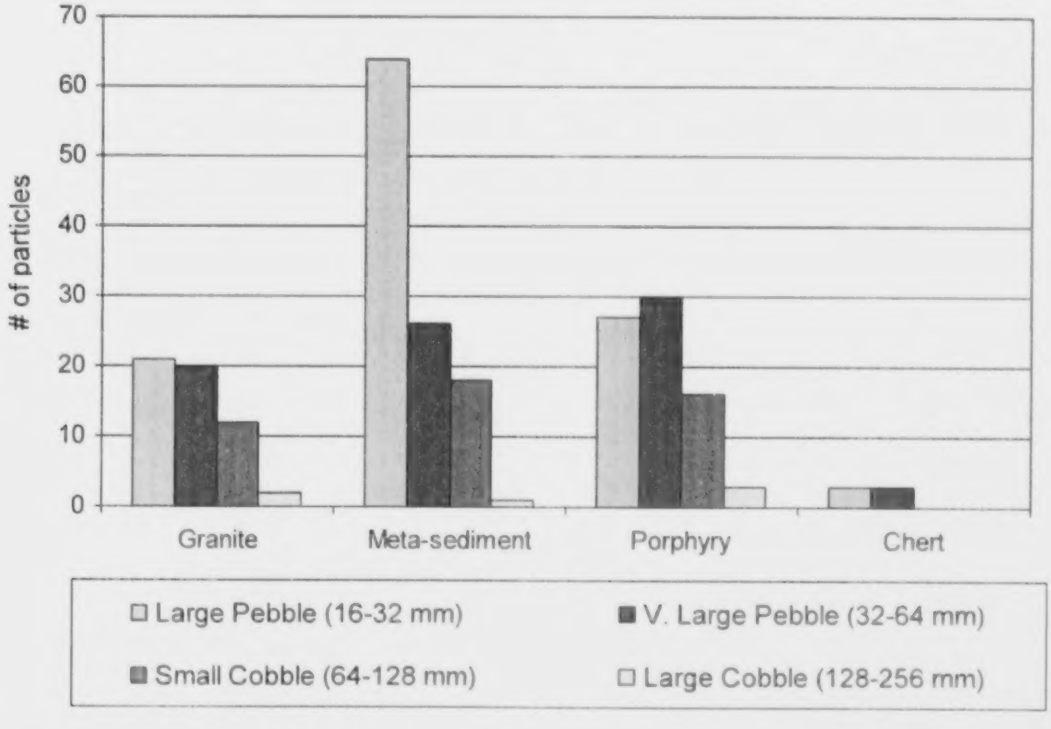
Rock Type:

Number of Different Textural Types

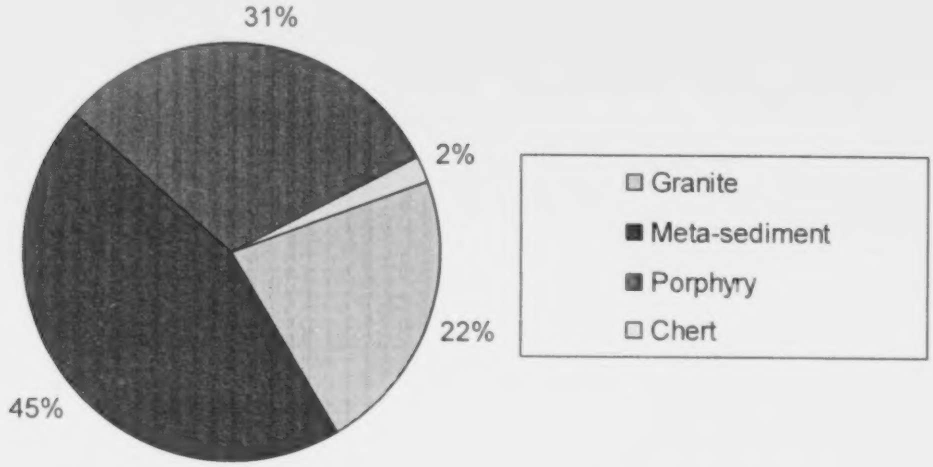
Sample # TW-100-01

Limited (<2)	Several (2-4)	Many (>4)
		X

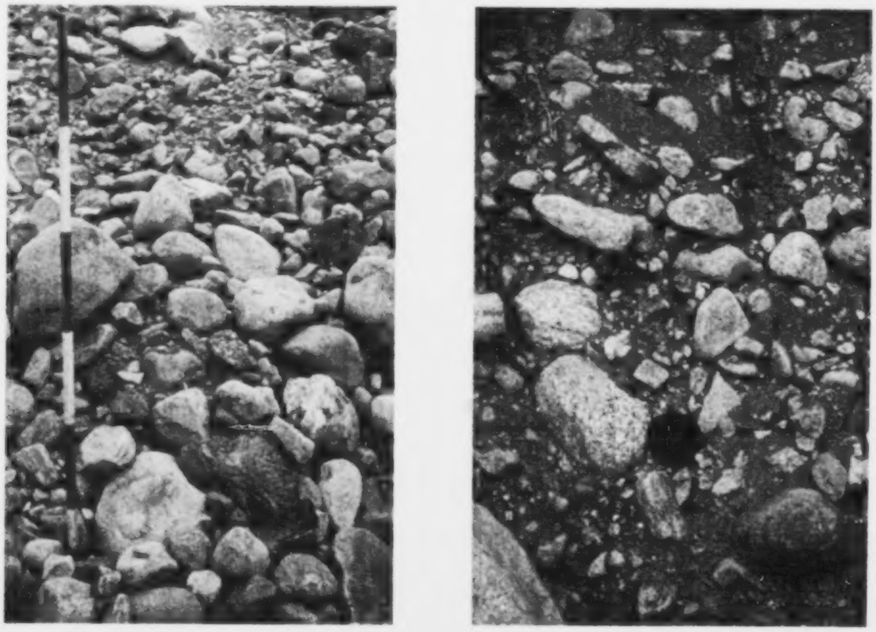
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-100-01



Typical scree pile and pit face distribution of colorful, rounded pebble to boulder size material near intersection of the Pratt Camp-Louis Lake and McKendrick Lake roads, west-central part of Northumberland County, north-central New Brunswick.

Comments: A potentially good source of rounded to well rounded cobble and small boulders. There is an abundance of pink augen granite and diorite which enhances textural and color contrasts with dominant meta-sedimentary rocks. Resource appears quite extensive to the south. The remoteness of the pit site lowers its overall potential rating to moderate (62%) (see Appendix D) but there appears to be a wide size range of aesthetically appealing material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Loggie Lodge

Sample #: TW-108-01 **Year:** 2001

Location: NTS: 21 J/15 County: Northumberland

Latitude: 46° 57.496" Longitude: 66° 31.636"

Zone: 19 UTM Northing: 5203300 UTM Easting: 687700

Description: A large (>2 ha) inactive pit, near intersection of the McKendrick Lake and North Pole Stream.

Comments: Mostly sand and pebbly gravel with minor (10-15%) grey and pink granite cobble. Not rated but may be worthy of more detailed evaluation.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Tuadook-Little Southwest Miramichi rivers

Sample #: TW-109-01 **Year:** 2001

Location: NTS: 21 J/15 County: Northumberland

Latitude: 46° 57.612" Longitude: 66° 34.720"

Zone: 19 UTM Northing: 5103350 UTM Easting: 684400

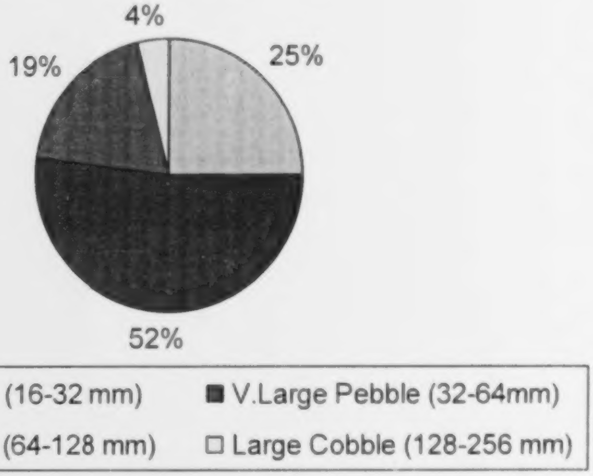
Description: A small (1-2 ha) inactive pit, 200 m north of the intersection of the McKendrick Lake and Louis Lake roads, near a campsite and adjacent the Little Southwest Miramichi River.

Particle Size Classification:

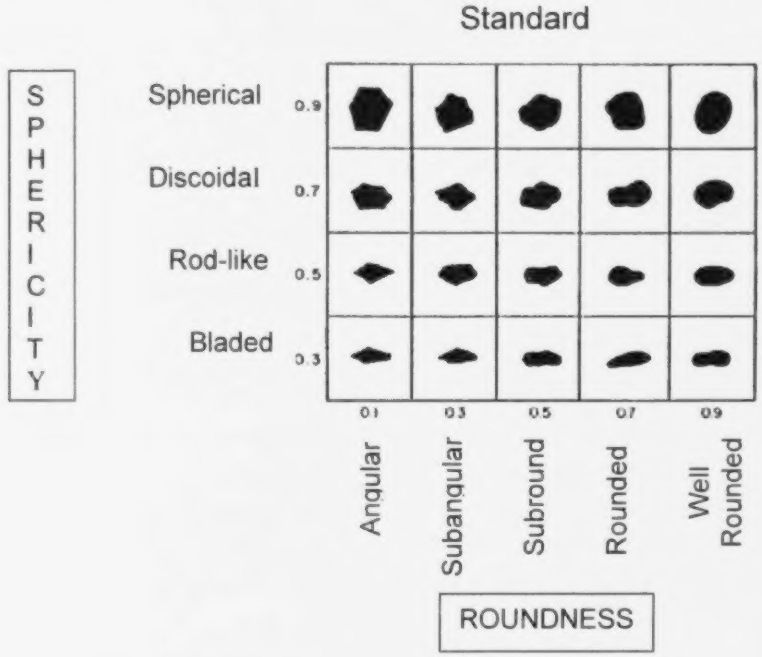
Pit–run Material

41 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

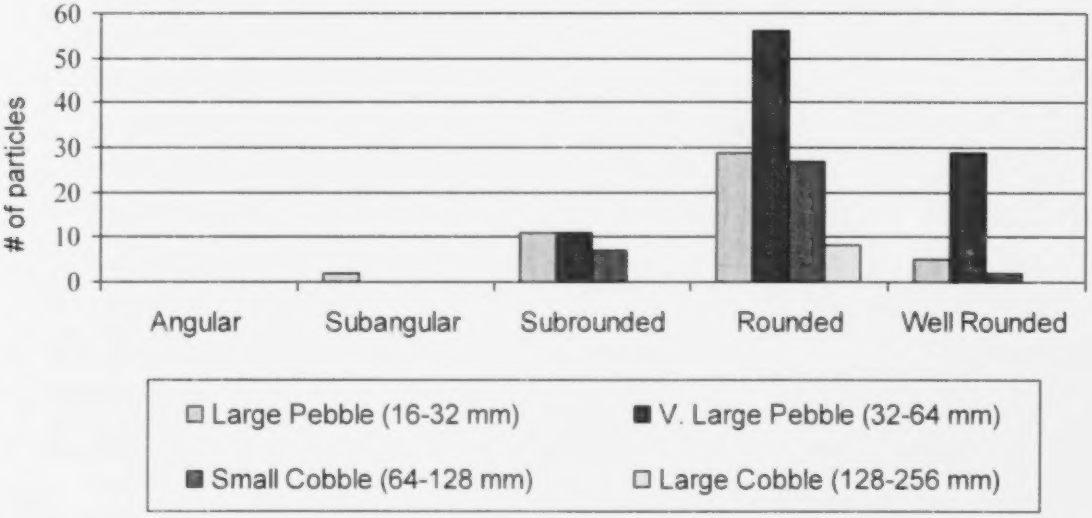


Roundness and Sphericity:

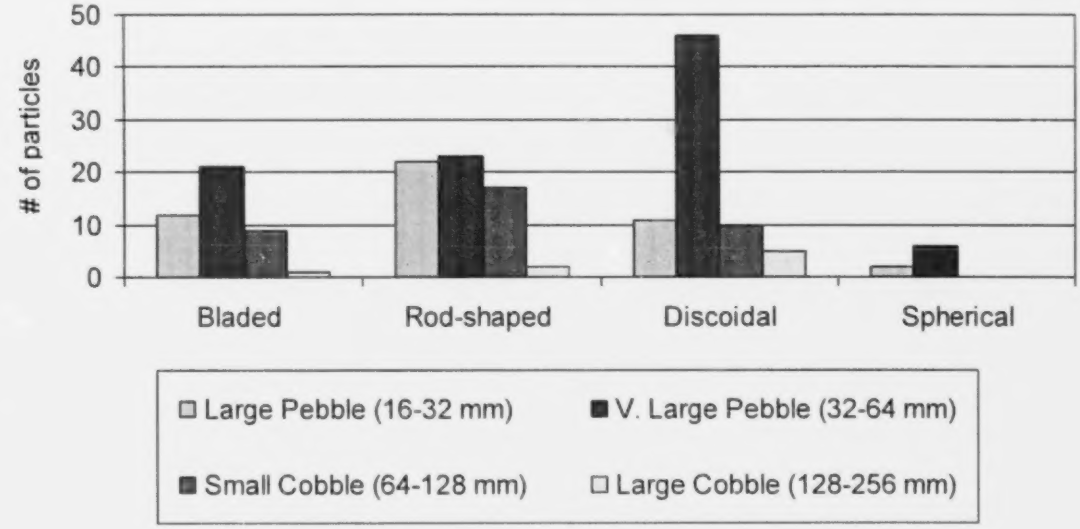


Roundness vs Particle Class Size

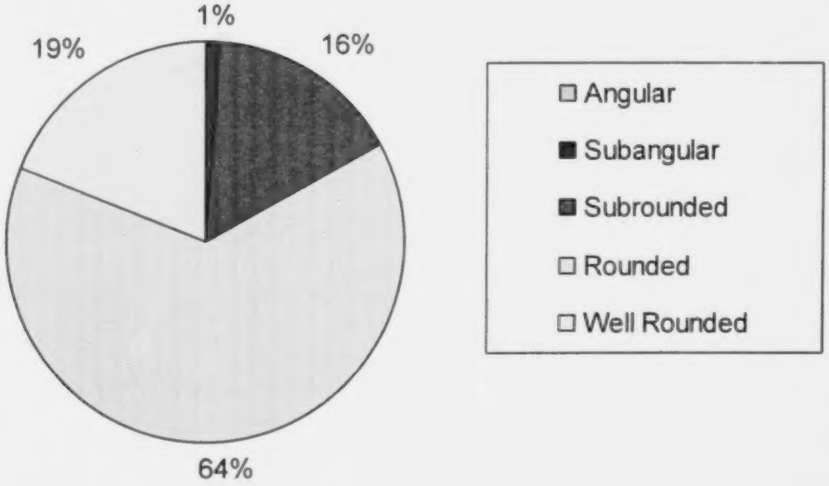
Sample # TW-109-01



Sphericity vs Particle Class Size

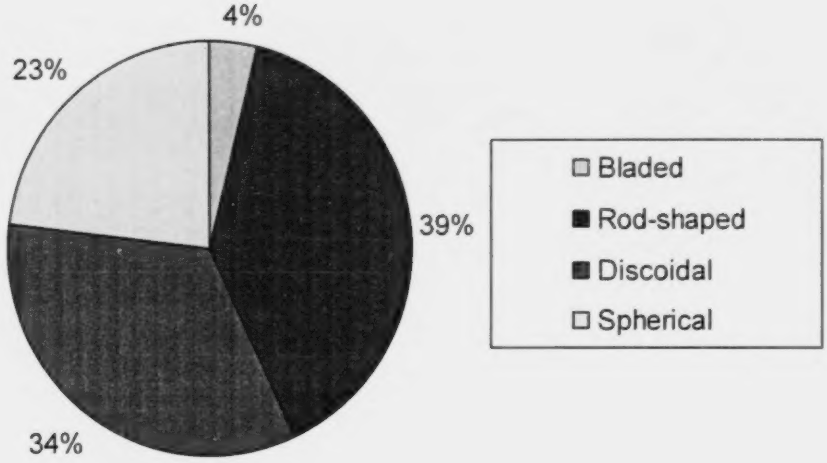


Average Roundness



Average = 0.70 (Rounded)
Standard deviation = 0.125

Average Sphericity



Average = 0.55 (Discoidal to Rod-shaped)
Standard deviation = 0.171

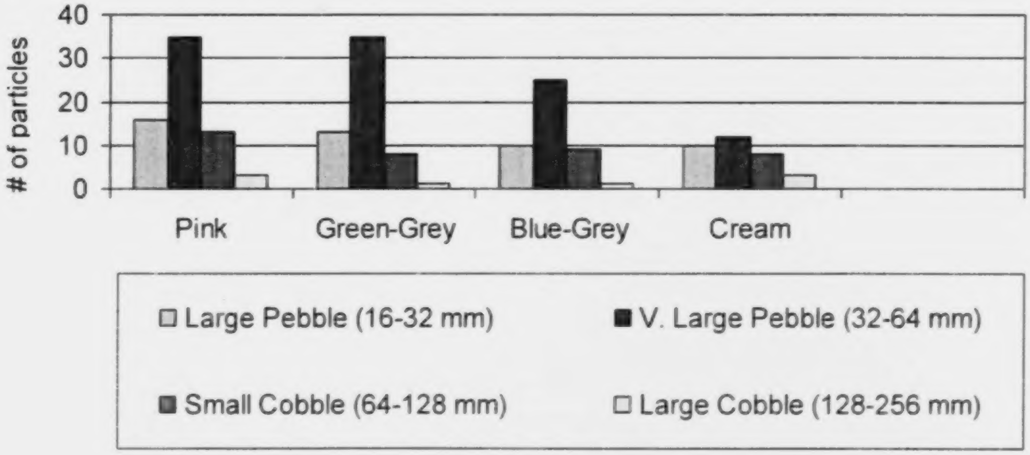
Color:

Sample # TW-109-01

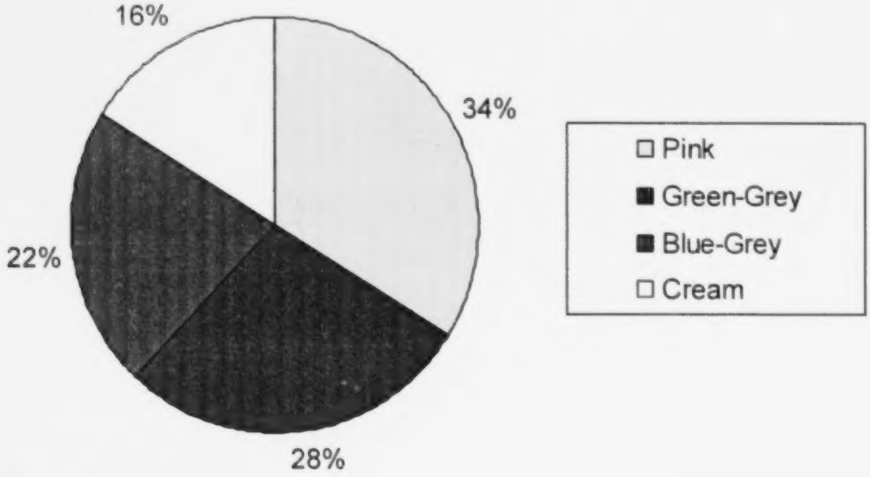
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



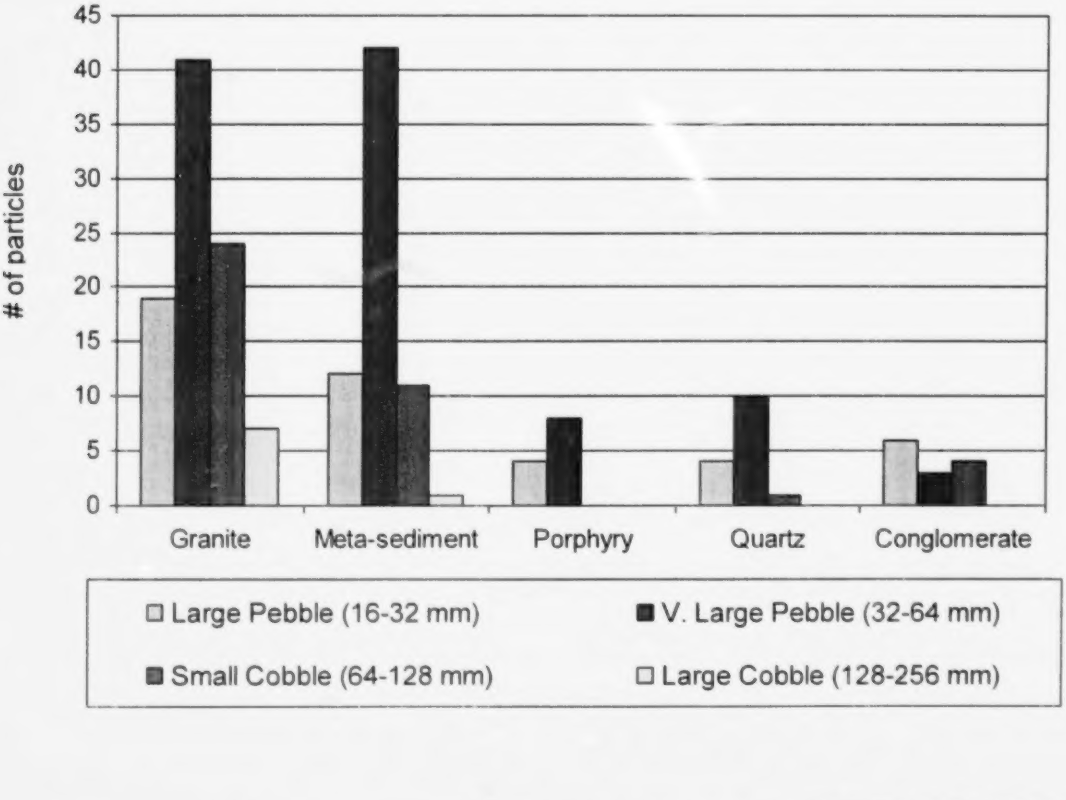
Rock Type:

Number of Different Textural Types

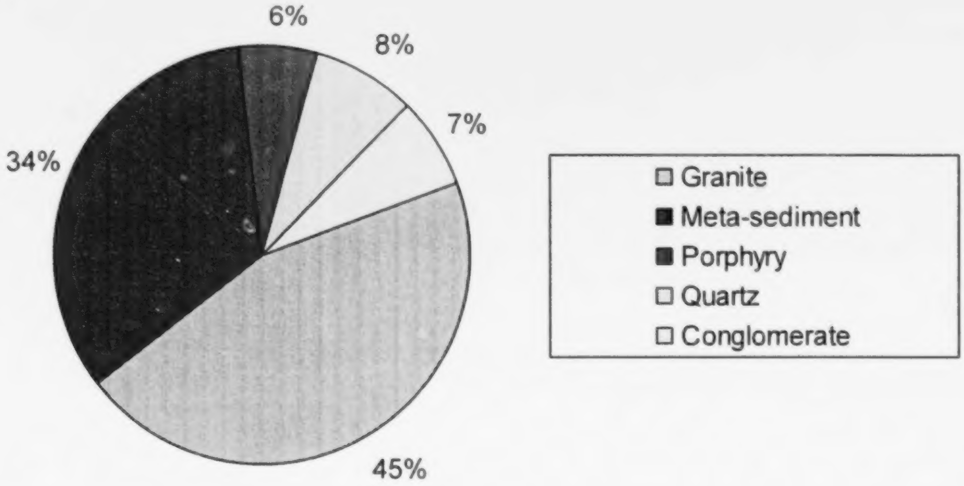
Sample # TW-109-01

Limited (<2)	Several (2-4)	Many (>4)
		X

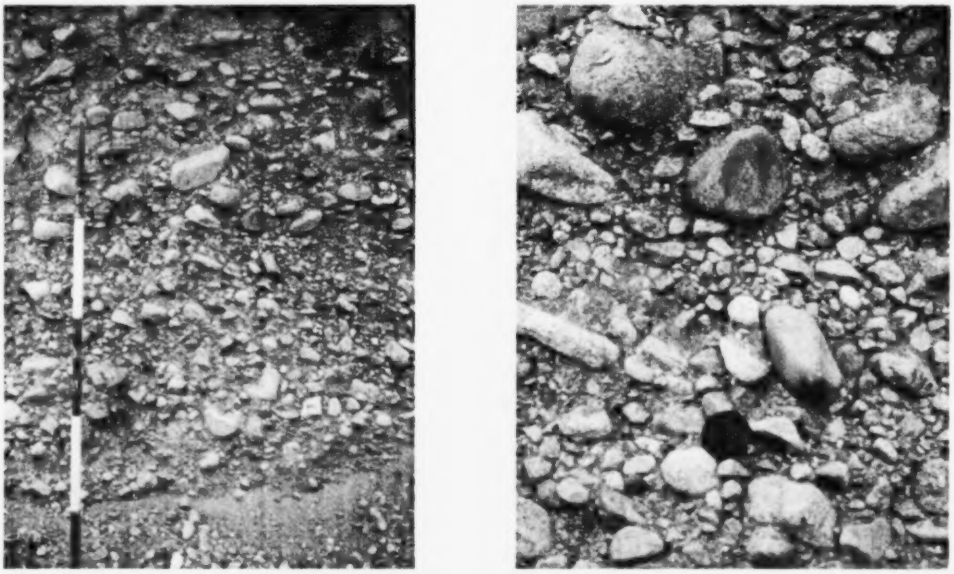
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-109-01



An abundance of large to very large rounded pebble is displayed at this particular site a few km north of Pratt's Camp and adjacent the Little Southwest Miramichi River, west-central part of Northumberland County, north-central New Brunswick.

Comments: Moderate decorative potential (58%) (see Appendix D) yet limited to large and very large pebble with pink and cream colored granite comprising about 50% of material. Although the resource appears somewhat limited at this location similar material may occur locally along Little Southwest Miramichi River for several kilometers. The remote location of the resource and proximity to river lowers its potential rating.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Big Hole Lake (north)

Sample #: TW-110-01 **Year:** 2001

Location: NTS: 21 J/09 County: Northumberland

Latitude: 46° 38.212" Longitude: 66° 18.853"

Zone: 19 UTM Northing: 5168300 UTM Easting: 705400

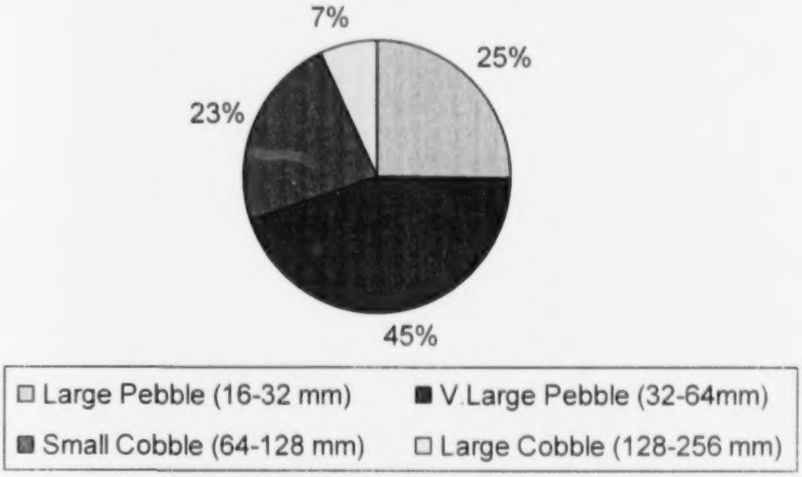
Description: A very large (> 4 ha) inactive pit, 700 m east of the Big Hole Brook-Dungarvon Road and 2 km north of Big Hole Lake.

Particle Size Classification:

Pit–run Material

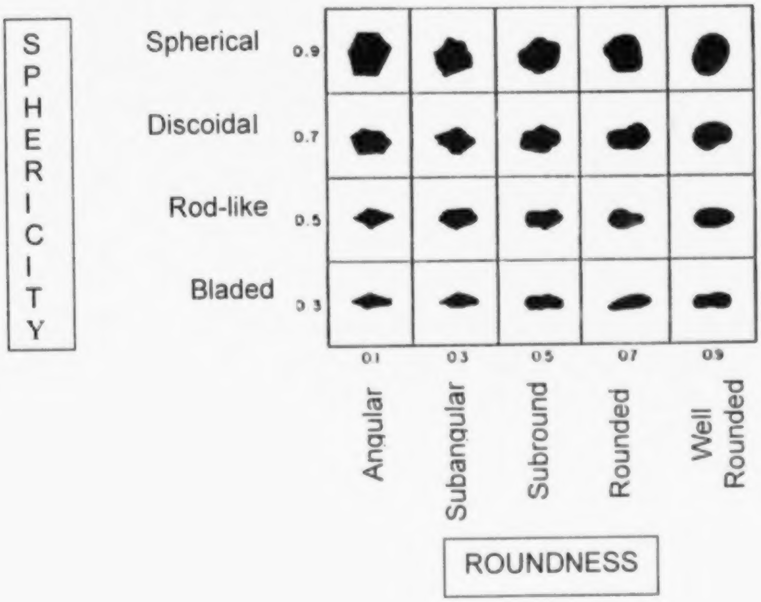
32 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**68 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material



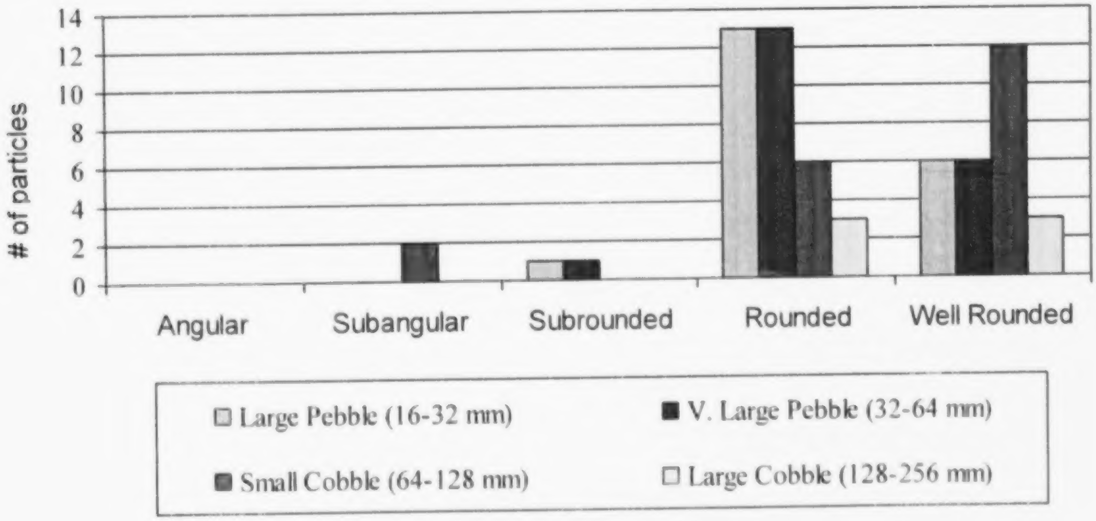
Roundness and Sphericity:

Standard



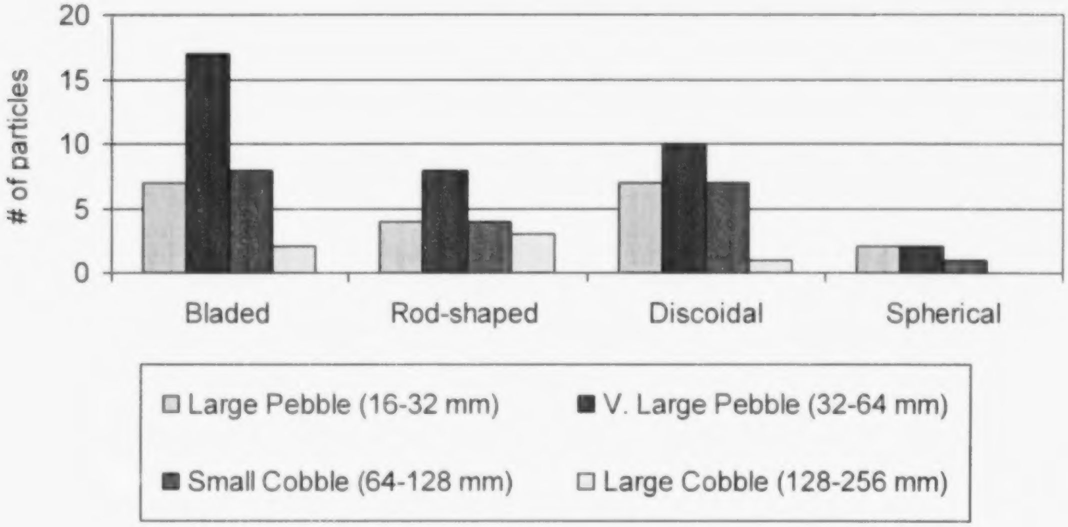
Roundness vs Particle Class Size

Sample # TW-110-01

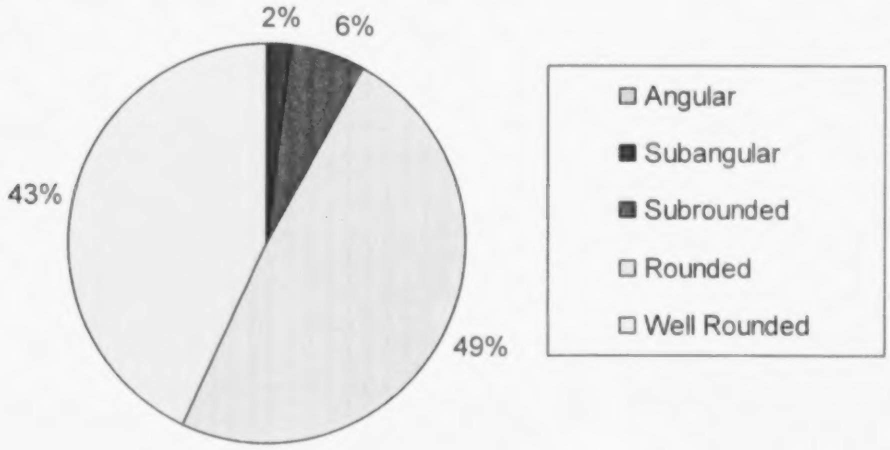


Sample # TW-110-01

Sphericity vs Particle Class Size

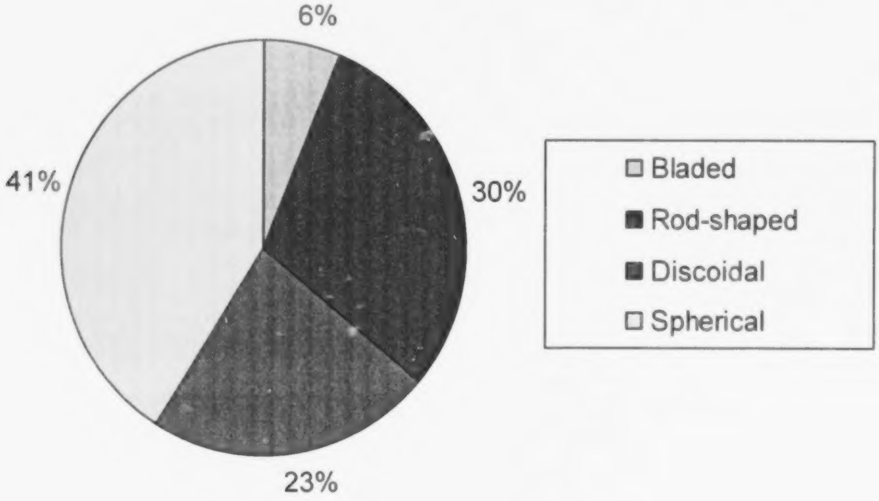


Average Roundness



Average = 0.765 (Rounded/Well Rounded)
Standard deviation = 0.140

Average Sphericity



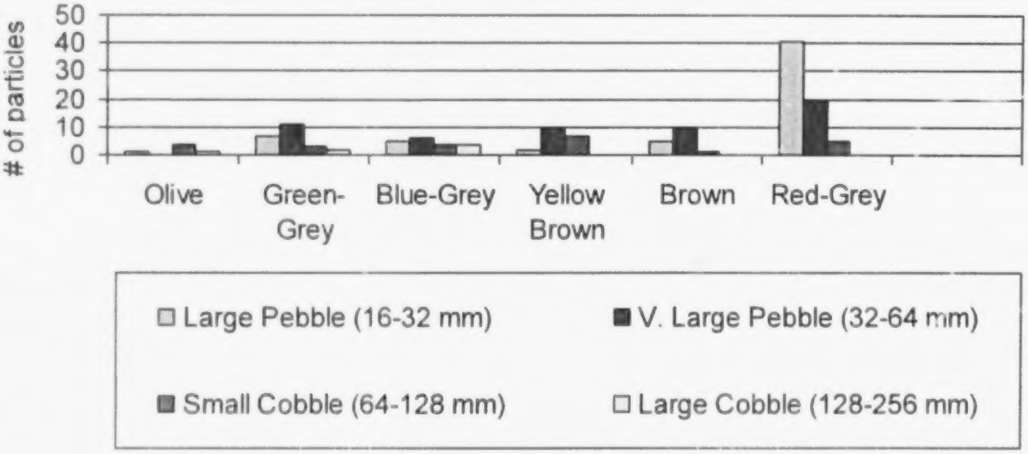
Average = 0.50 (Spherical to Discoidal)
Standard deviation = 0.196

Color:

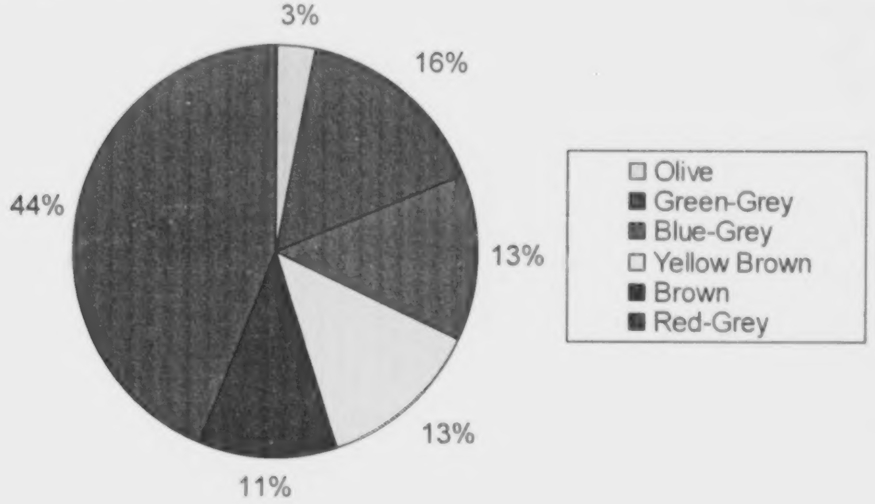
Sample # TW-110-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution

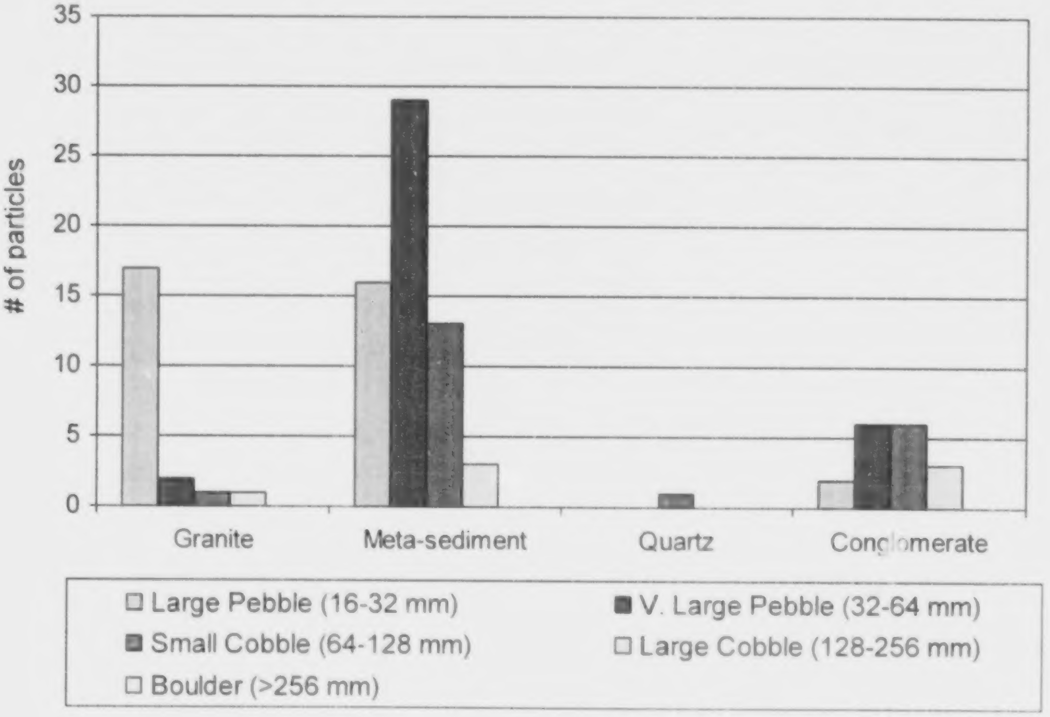


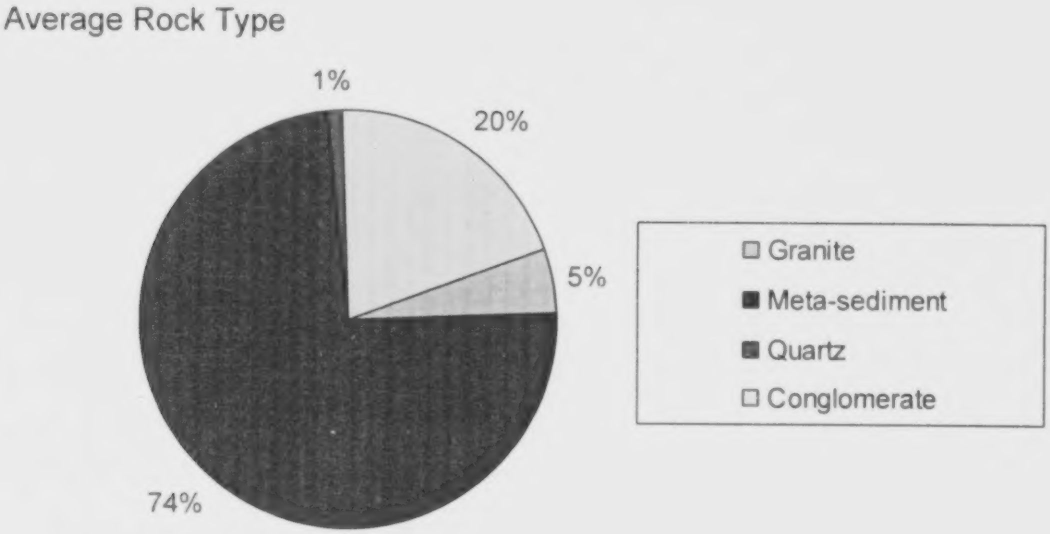
Rock Type:

Number of Different Textural Types

Sample # TW-110-01	Limited (<2)	Several (2-4)	Many (>4)
			X

Rock Type vs Particle Class Size





Sample # TW-110-01

Pit face revealing very large pebble and weathered flaggy sandstone, north of Big Hole Lake, southwestern part of Northumberland County, north-central New Brunswick.

Comments: Resource characterized by rounded to well rounded, grey to brown, large pebble to cobble meta-sedimentary rocks with flaggy sandstone locally. Moderate potential (61%) (see Appendix D) for high valued decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Mullins Stream Road

Sample #: TW-111-01 **Year:** 2001

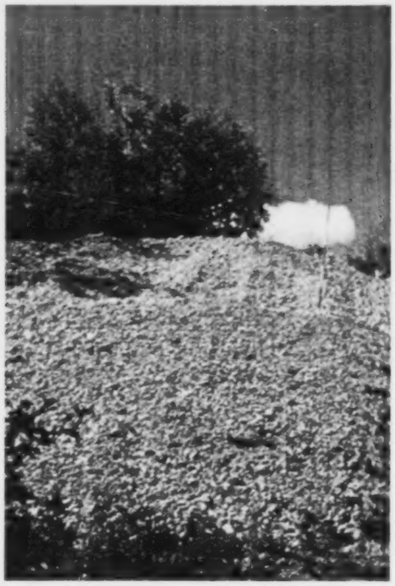
Location: NTS: 21 O/01 County: Northumberland

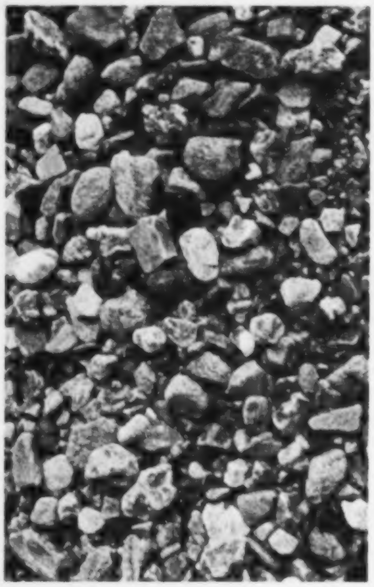
Latitude: 47° 08.933" Longitude: 66° 59.181"

Zone: 20 UTM Northing: 5226050 UTM Easting: 273750

Description: A large (2-3 ha) inactive pit, adjacent and north of the Mullins Stream Road, 10-11 km from its intersection with Highway # 430.

Sample #: TW-111-01





Comments: Not sampled. Mostly fine grained material with up to 5% pebble to small cobble with interesting textures (i.e. leucocratic granite and oblong-shaped, banded tuffaceous rock). A large stock pile of screened and crushed pebble and cobble-size material has unqualified (moderate to low?) potential for decorative purposes. Overall color of material is light to dark grey.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: North Branch Big Sevogle River (south)

Sample #: TW-112-01 **Year:** 2001

Location: NTS: 21 O/01 County: Northumberland

Latitude: 47° 07.713" Longitude: 65° 58.984"

Zone: 20 UTM Northing: 5224150 UTM Easting: 273750

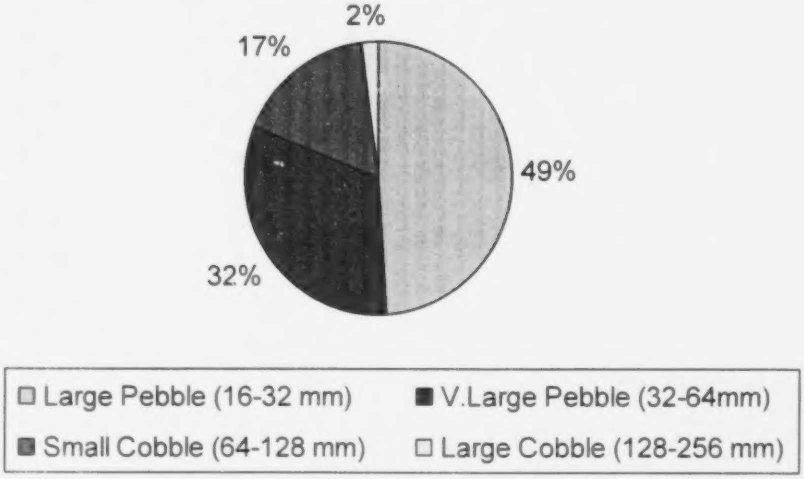
Description: A small (1 ha) inactive pit, 1.5 km south of Mullin Stream Road and 2km south of site TW-111 near the North Branch of the Big Sevogle River.

Particle Size Classification:

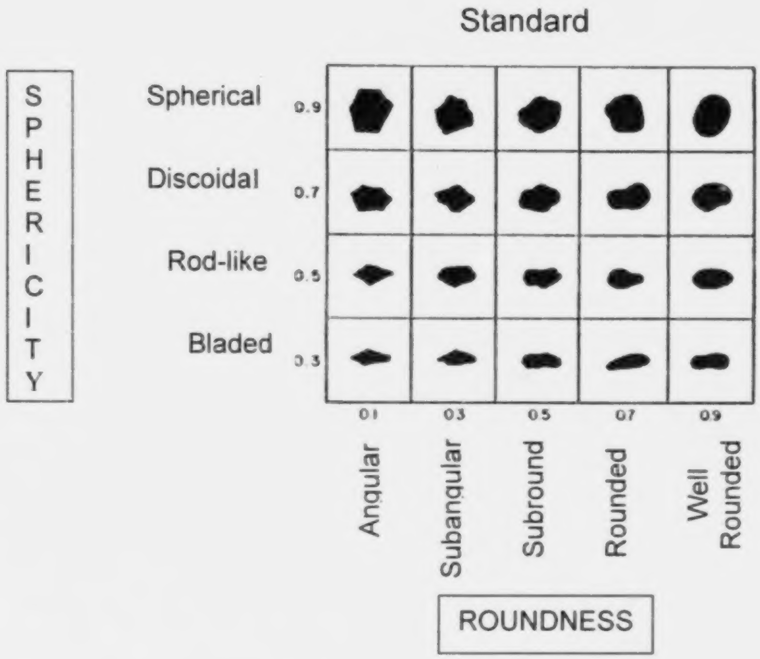
Pit–run Material

42 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**58 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4 mm Material

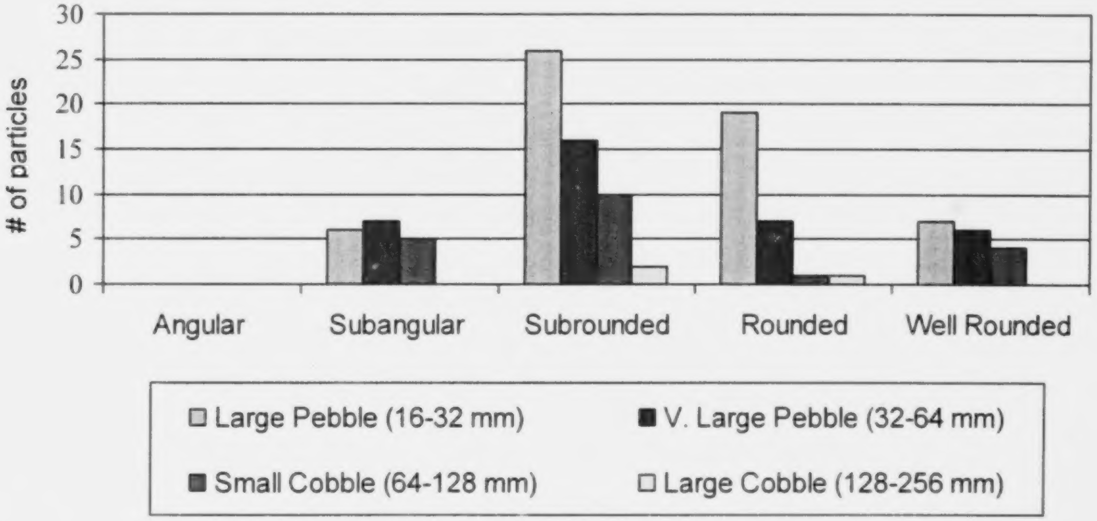


Roundness and Sphericity:



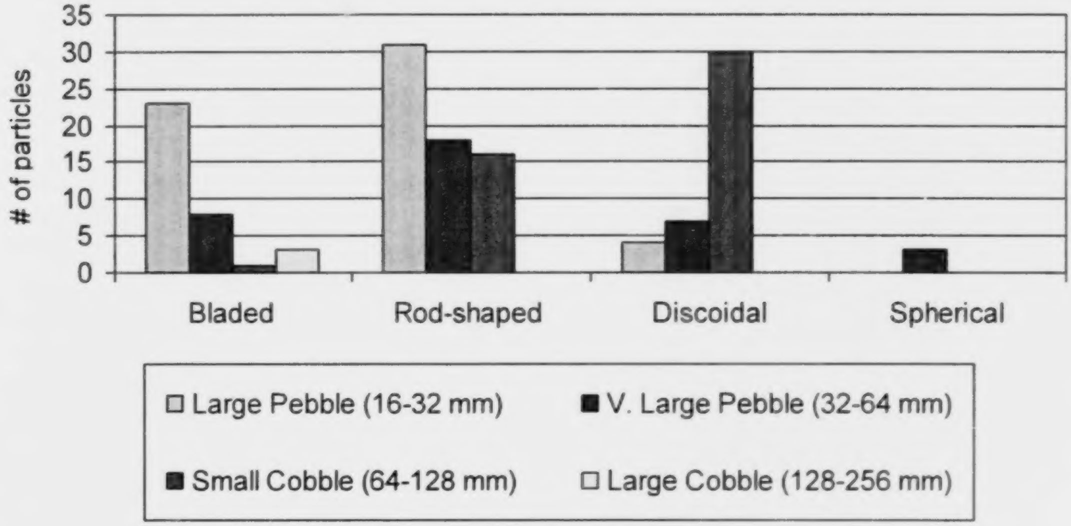
Roundness vs Particle Class Size

Sample # TW-112-01

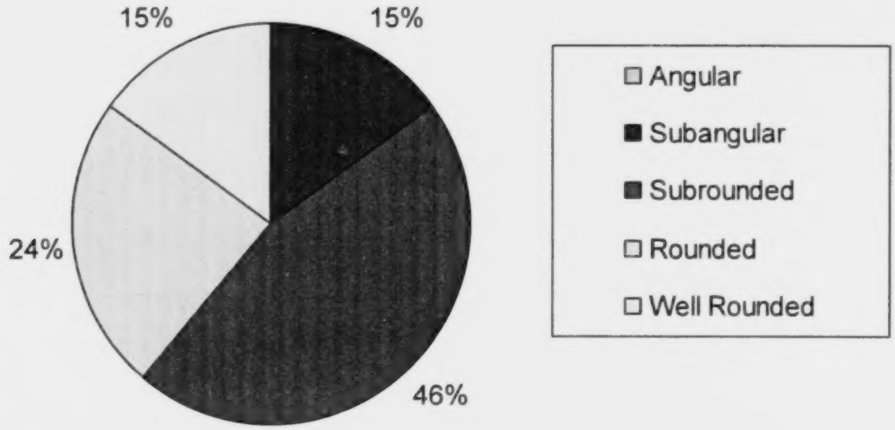


Sample # TW-112-01

Sphericity vs Particle Class Size

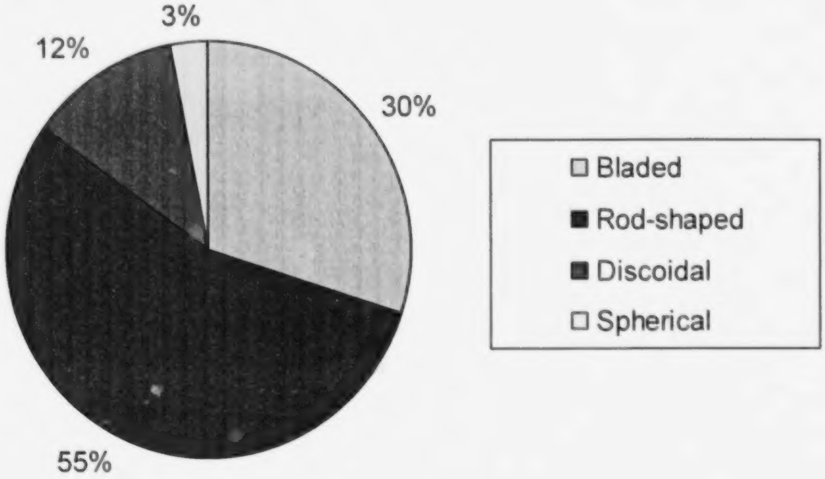


Average Roundness



Average = 0.58 (Subrounded to Rounded)
Standard deviation = 0.183

Average Sphericity



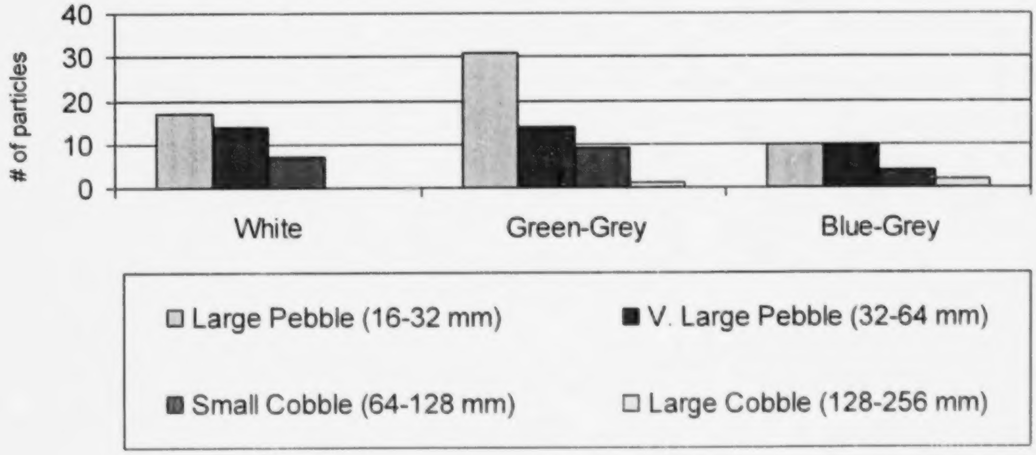
Average = 0.47 (Rod-shaped to Bladed)
Standard deviation = 0.142

Color:

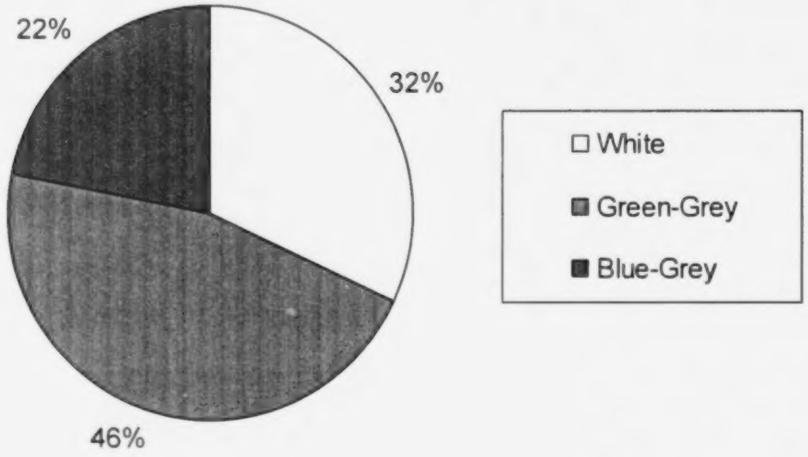
Sample # TW-112-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



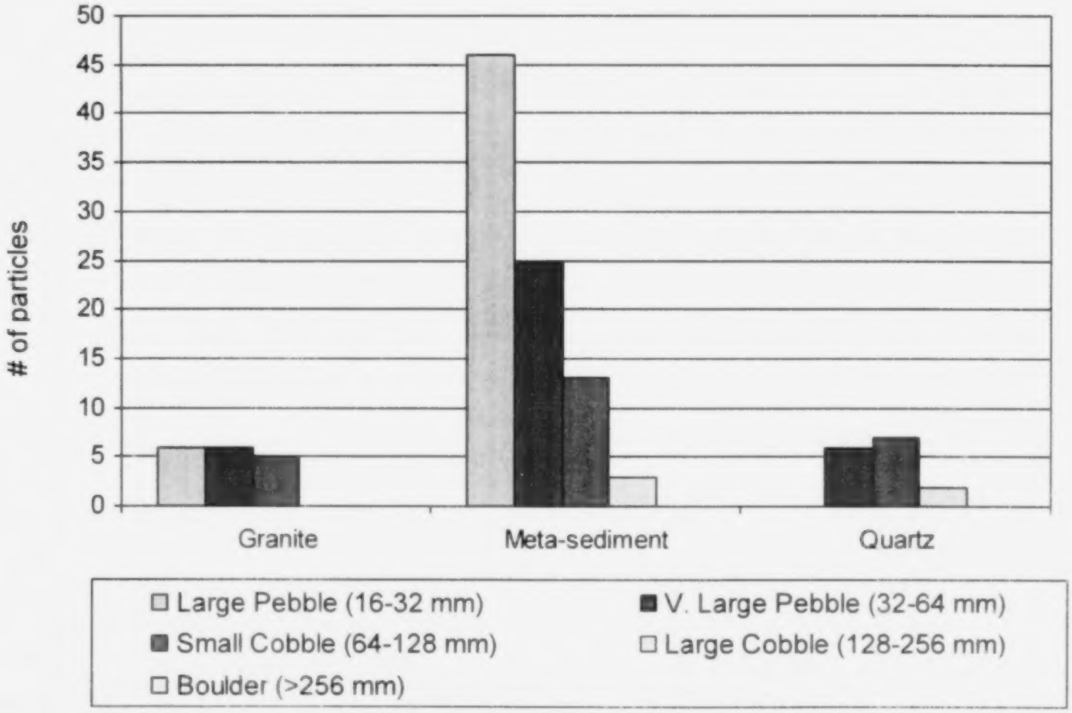
Rock Type

Number of Different Textural Types

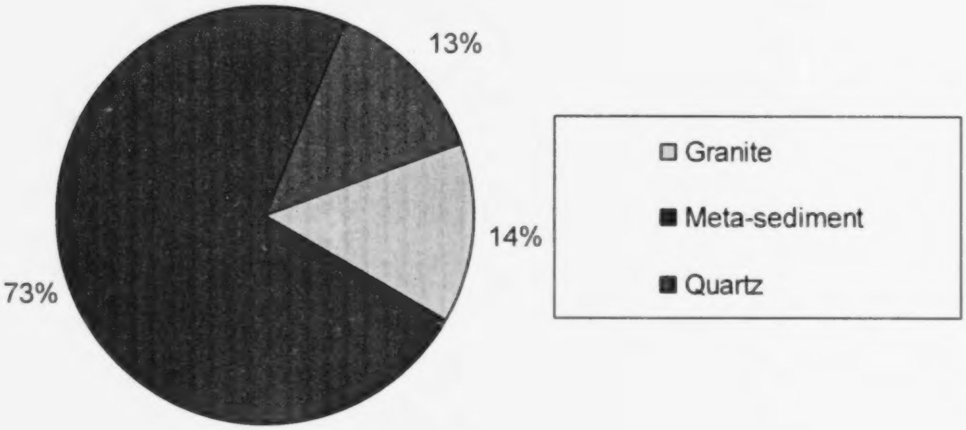
Sample # TW-112-01

Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-112-01

Iron-stained, large to very large pebbles of subrounded meta-sedimentary rock 15 km west of Wayerton near North Branch Big Sevogle River, north-central part of Northumberland County, north-central New Brunswick.

Comments: Material is mostly grey, subrounded, rod to bladed shaped, large to very large pebble. Iron oxide staining of particles is quite common. Rated at a moderate to low (51%) (see Appendix D) priority for decorative purposes.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Sevogle-Shaddick Lake

Sample #: TW-113-01 **Year:** 2001

Location: NTS: 21 P/04 County: Northumberland

Latitude: 47° 05.024" Longitude: 65° 52.718"

Zone: 20 UTM Northing: 5218700 UTM Easting: 281550

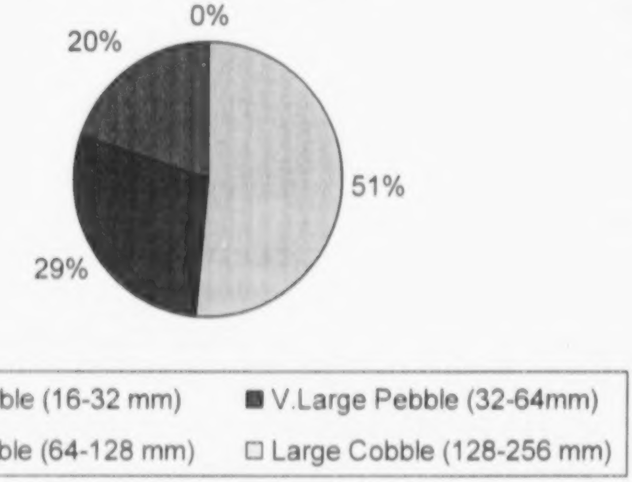
Description: A network of active and inactive pits and related excavations extending over many hectares, 3.5 km south of Wayerton, near the west bank of the Northwest Miramichi River and 4.5 km north of its confluence with the Big Sevogle River.

Particle Size Classification:

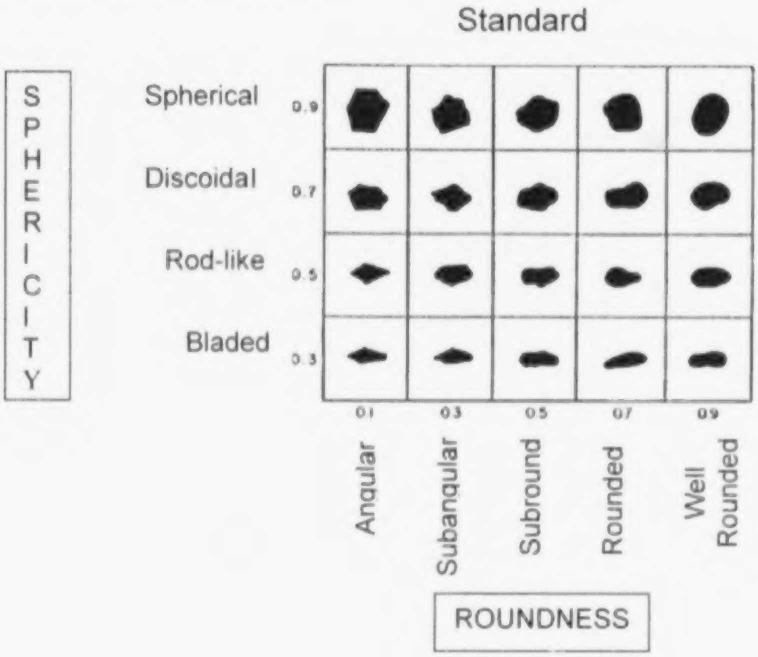
Pit–run Material

38 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**61 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

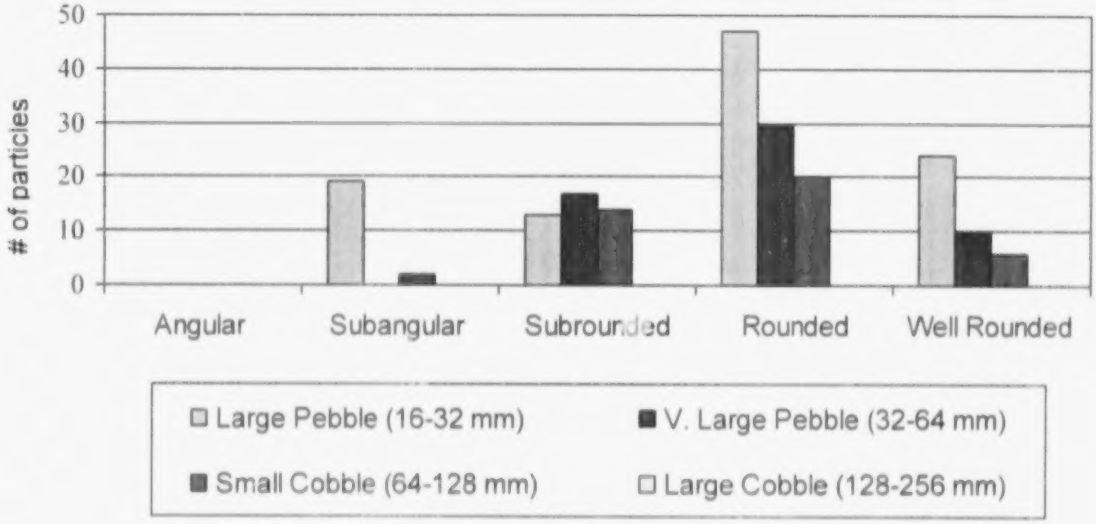


Roundness and Sphericity:



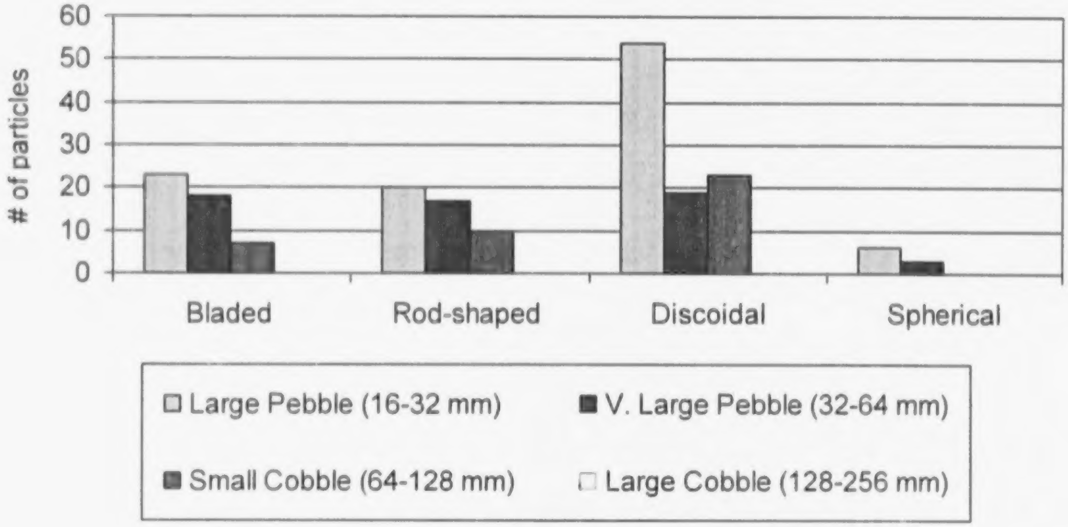
Roundness vs Particle Class Size

Sample # TW-113-01

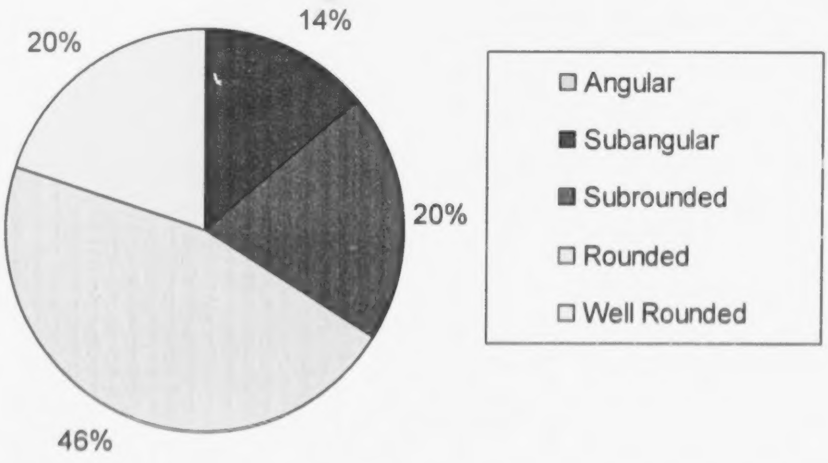


Sample # TW-113-01

Sphericity vs Particle Class Size

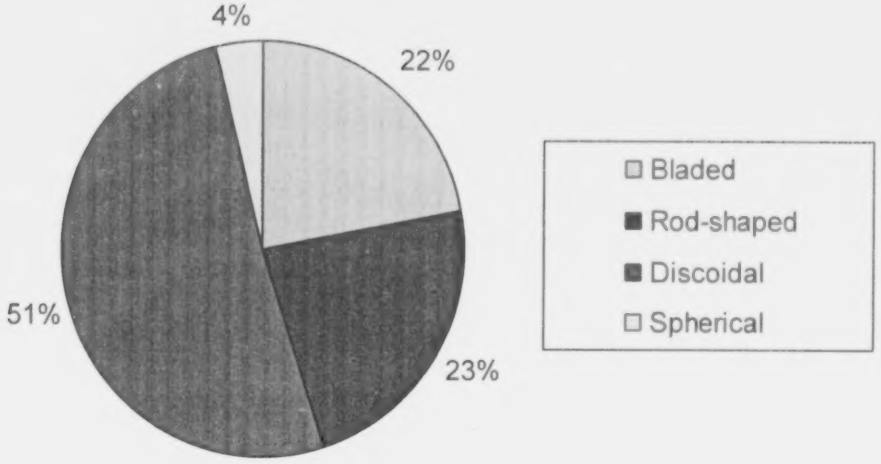


Average Roundness



Average = 0.66 (Rounded to Well Rounded/Subrounded)
Standard deviation = 0.174

Average Sphericity



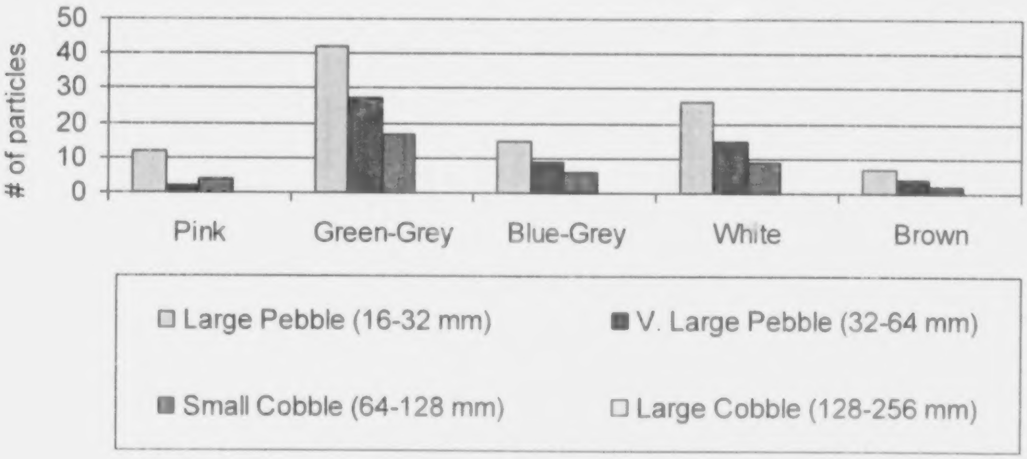
Average = 0.57 (Discoidal to Rod-shaped and Bladed)
Standard deviation = 0.178

Color:

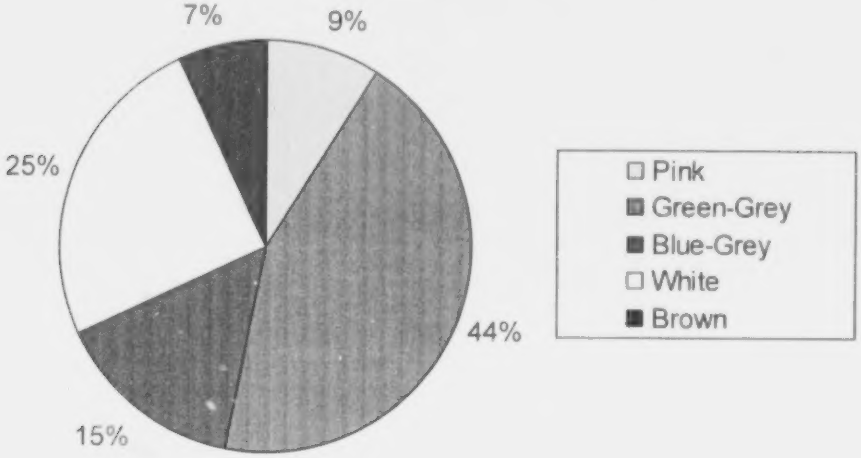
Sample # TW-113-01

Number of Different Colors	Limited (<2)	Several (2-4)	Many (>4)
			X

Color Classification vs Particle Class Size



Average Color Distribution



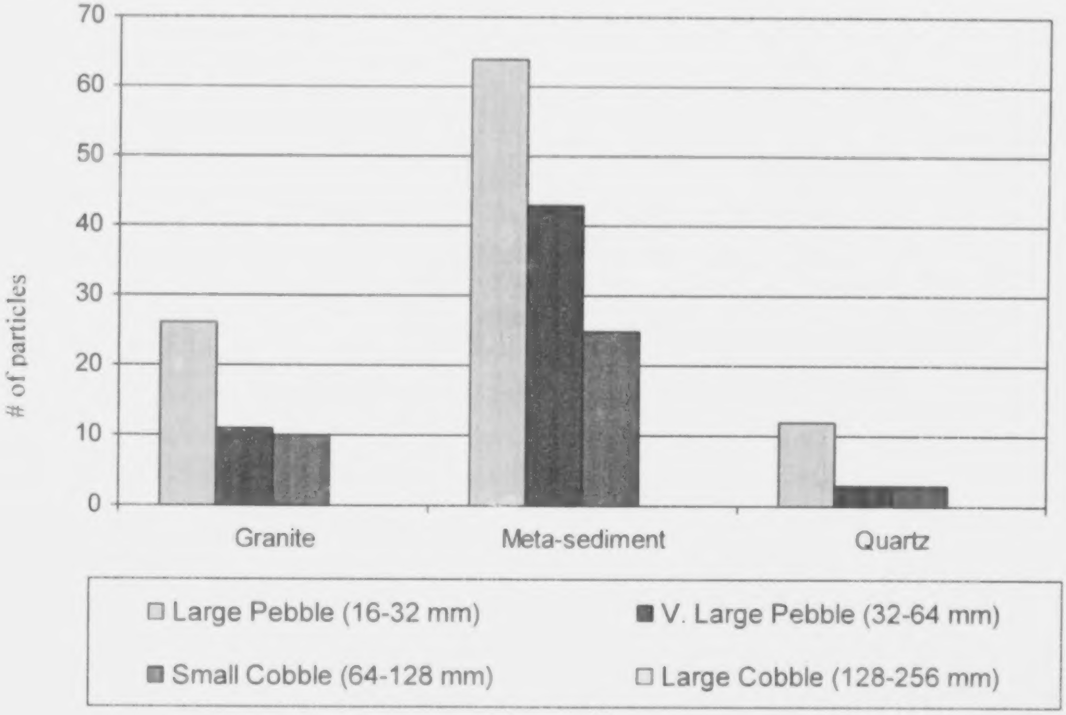
Rock Type:

Number of Different Textural Types

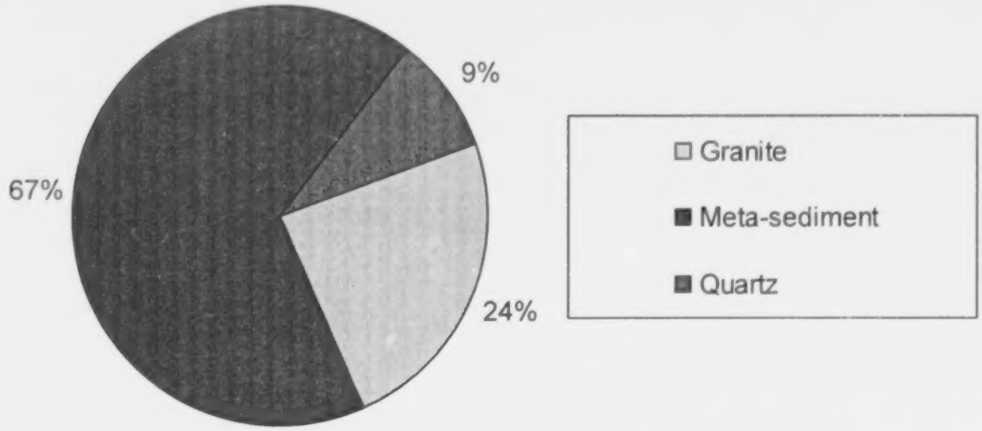
Sample # TW-113-01

Limited (<2)	Several (2-4)	Many (>4)
		X

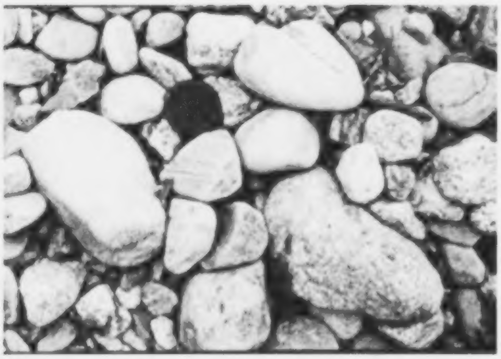
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-113-01



Local concentrations of pebbles and small cobble, displaying a wide range of colors and textures from the Shaddick Lake area, south of Wayerton, north-central part of Northumberland County, north-central New Brunswick.

Comments: Locally a moderate potential (60%) (see Appendix D) as a source of pebbles and small cobble in wide range of color and textures, however resource may be limited.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Big Sevogle River

Sample #: TW-114-01 **Year:** 2001

Location: NTS: 21 P/04 County: Northumberland

Latitude: 47° 03.961" Longitude: 65° 53.514"

Zone: 20 UTM Northing: 5216700 UTM Easting: 280350

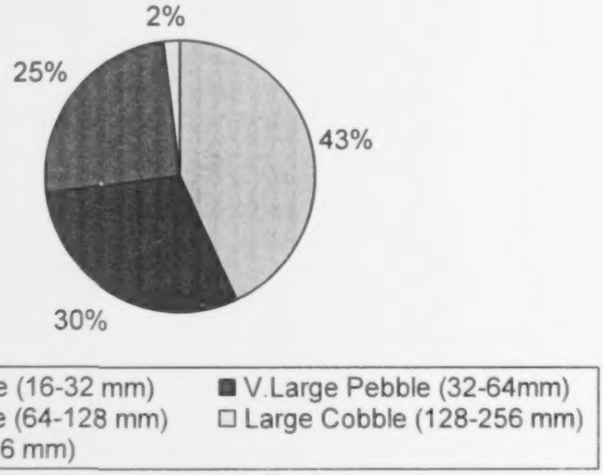
Description: A very large (5 ha) active pit, 700 m south of the Big Sevogle River and 4.5 km west of its confluence with the Northwest Miramichi River.

Particle Size Classification:

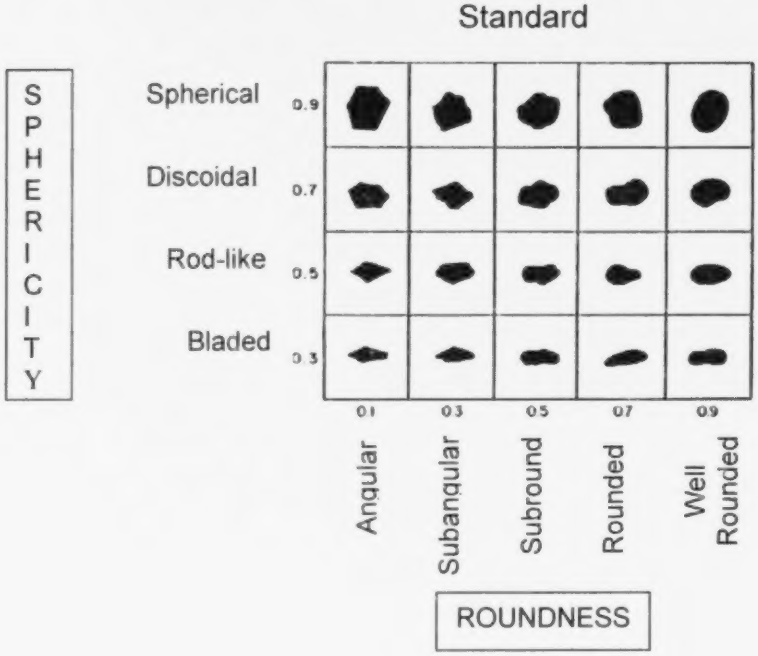
Pit–run Material

41 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**59 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

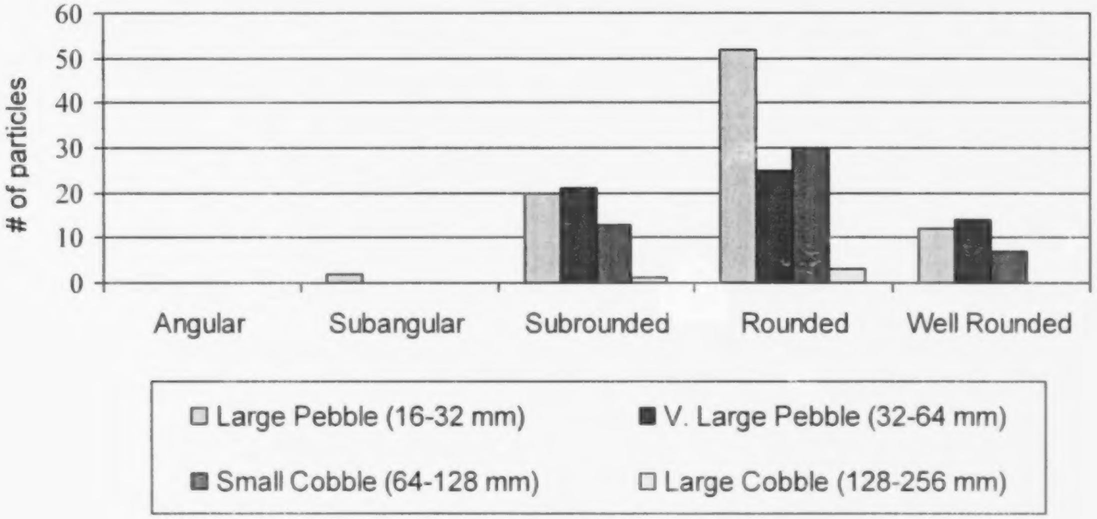


Roundness and Sphericity:



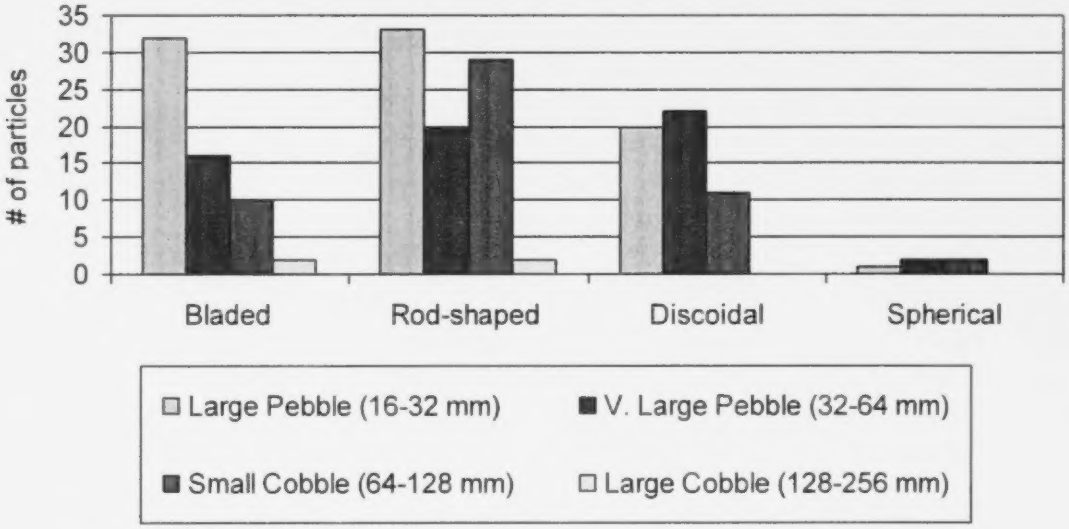
Roundness vs Particle Class Size

Sample # TW-114-01

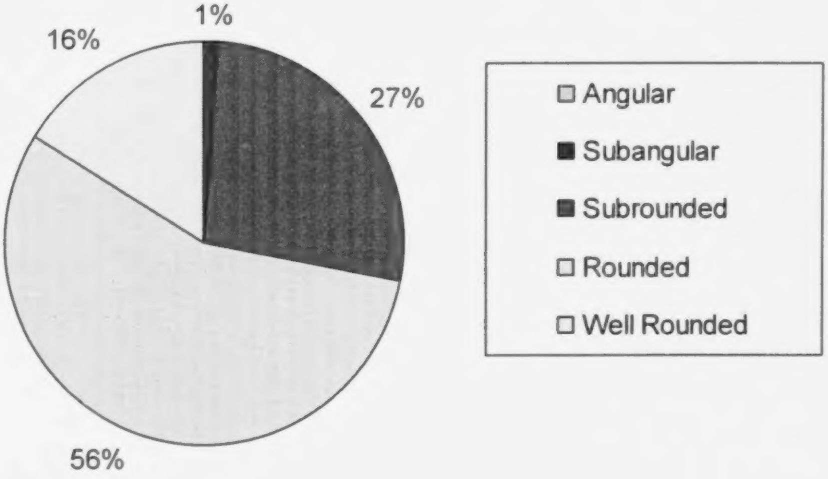


Sample # TW-114-01

Sphericity vs Particle Class Size

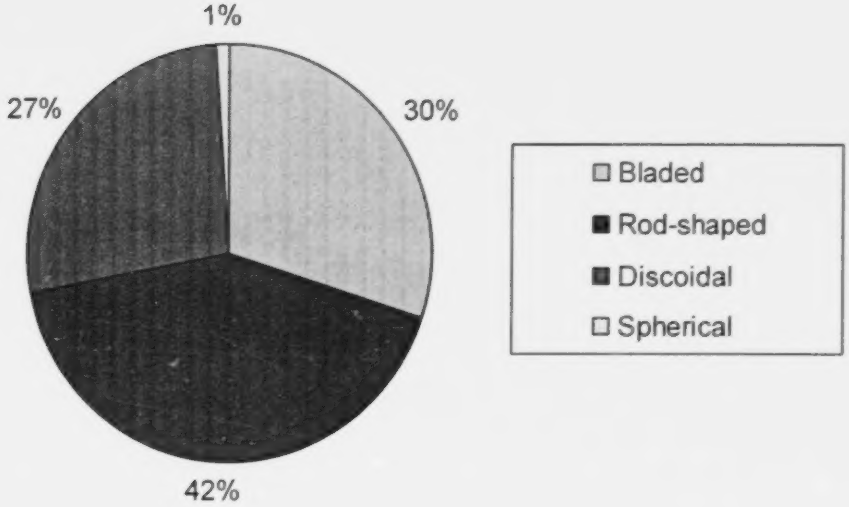


Average Roundness



Average = 0.52 (Rounded to Subrounded)
Standard deviation = 0.155

Average Sphericity



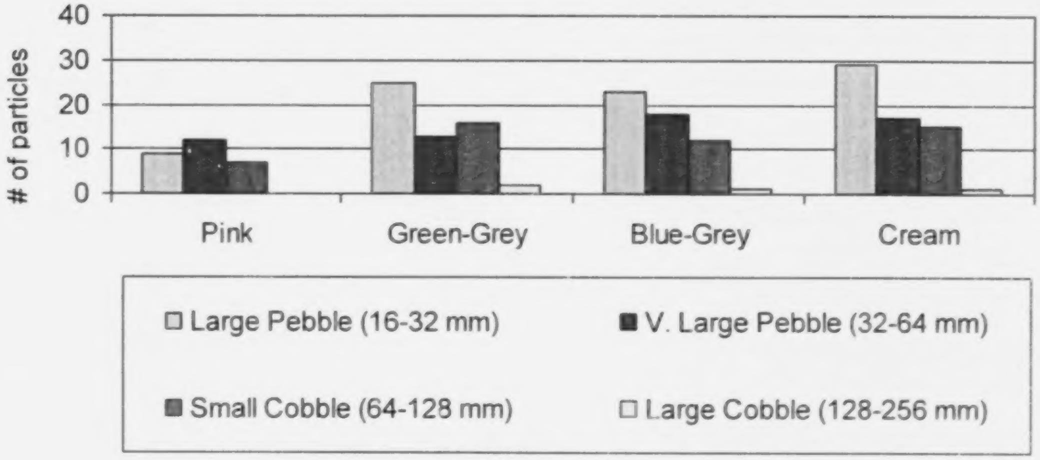
Average = 0.67 (Rod-shaped to Bladed)
Standard deviation = 0.137

Color:

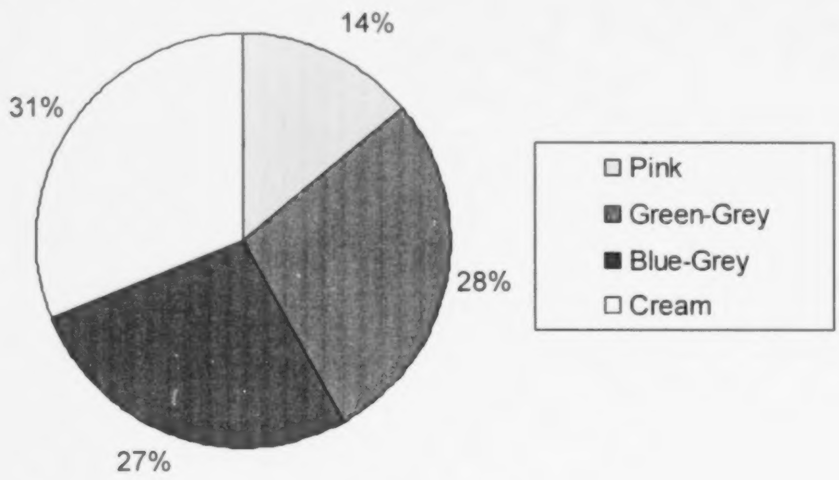
Sample # TW-114-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



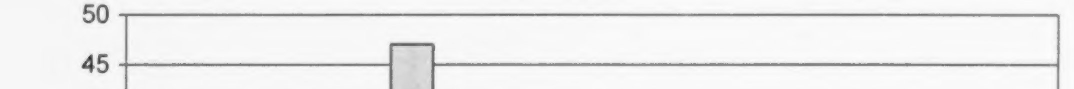
Rock Type:

Number of Different Textural Types

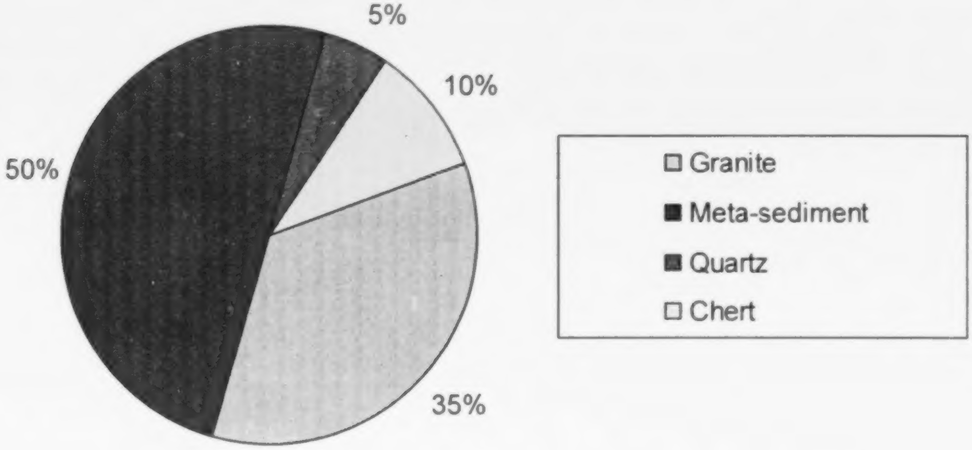
Sample # TW-114-01

Limited (<2)	Several (2-4)	Many (>4)
	X	

Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-114-01

Pebbles and small cobble (pit face and scree pile), displaying a wide range of color and texture, 5 km northwest of Curventon, north-central part of Northumberland County, north-central New Brunswick.

Comments: Moderate to high potential (67%) (see Appendix D) for decorative resource of pebbles to small cobble displaying a wide variety of contrasting color and textures

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Bois Gagnon

Sample #: TW-116-01 **Year:** 2001

Location: NTS: 21 P/06 County: Gloucester

Latitude: 47° 29.761" Longitude: 65° 12.413"

Zone: 20 UTM Northing: 5255900 UTM Easting: 296050

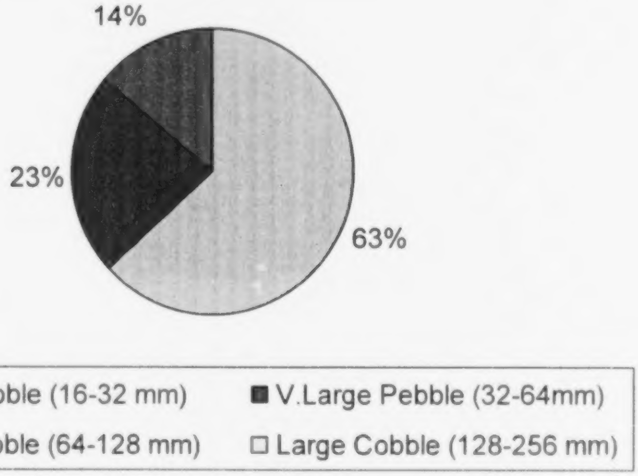
Description: A very large (> 5 ha) active pit, 2.5 km south of Bois Gagnon.

Particle Size Classification:

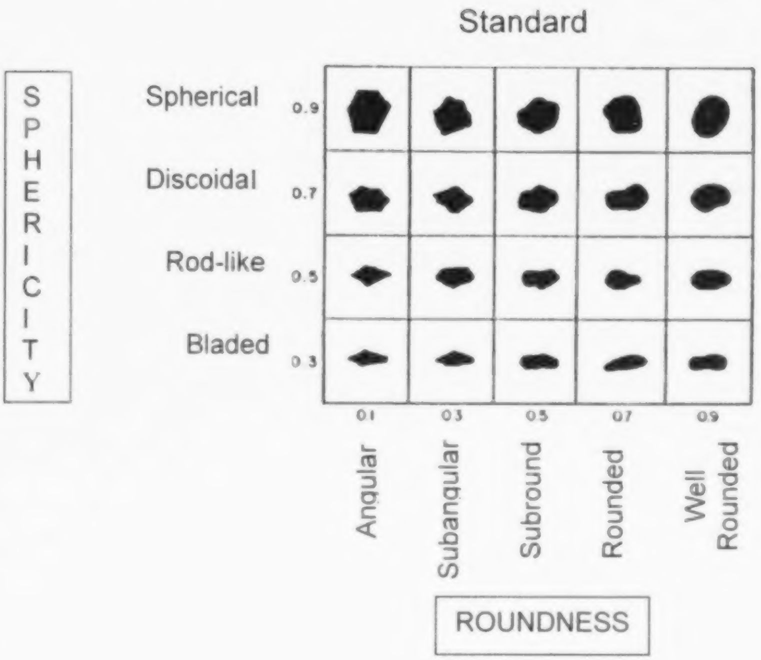
Pit–run Material

58 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**42 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

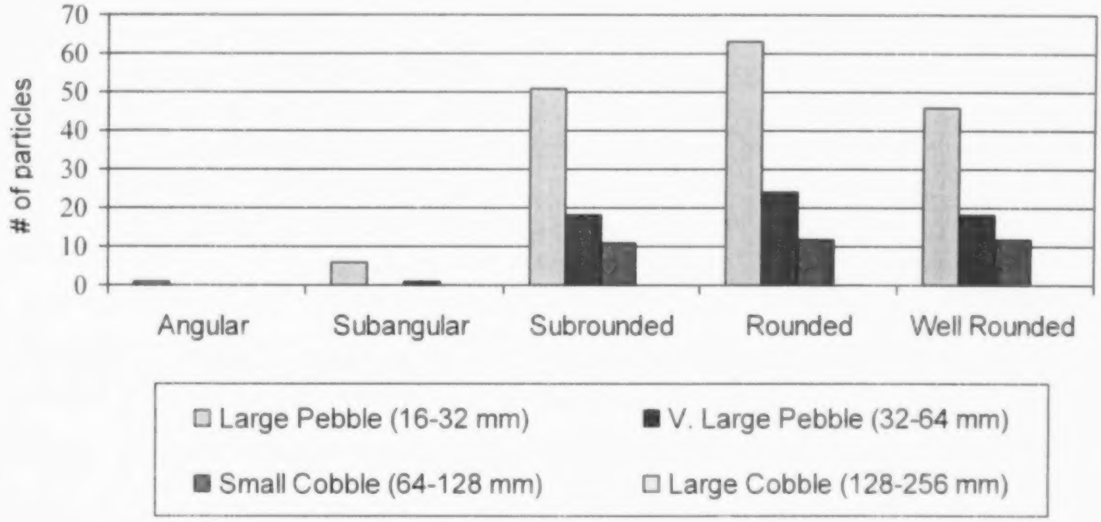


Roundness and Sphericity:



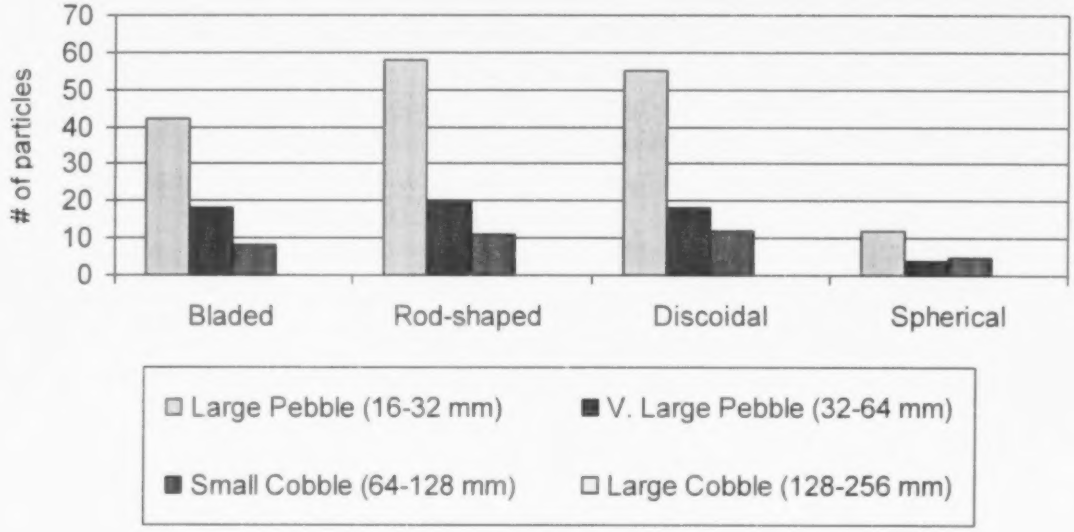
Roundness vs Particle Class Size

Sample # TW-116-01

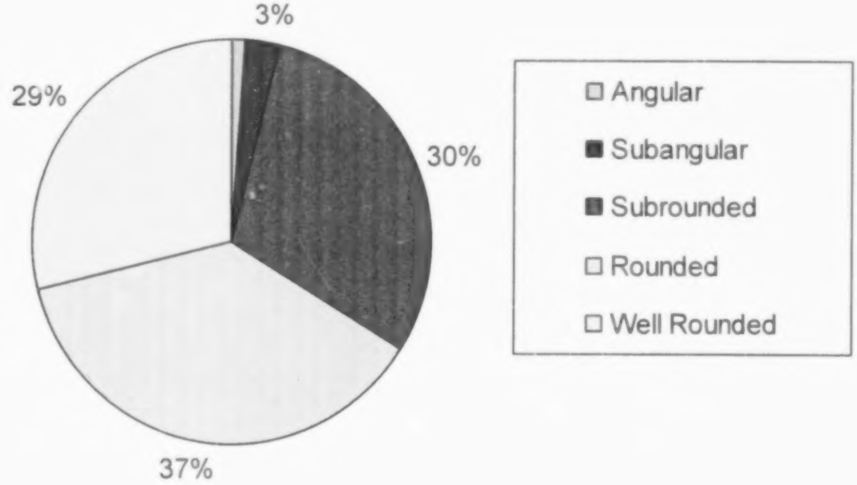


Sample # TW-116-01

Sphericity vs Particle Class Size

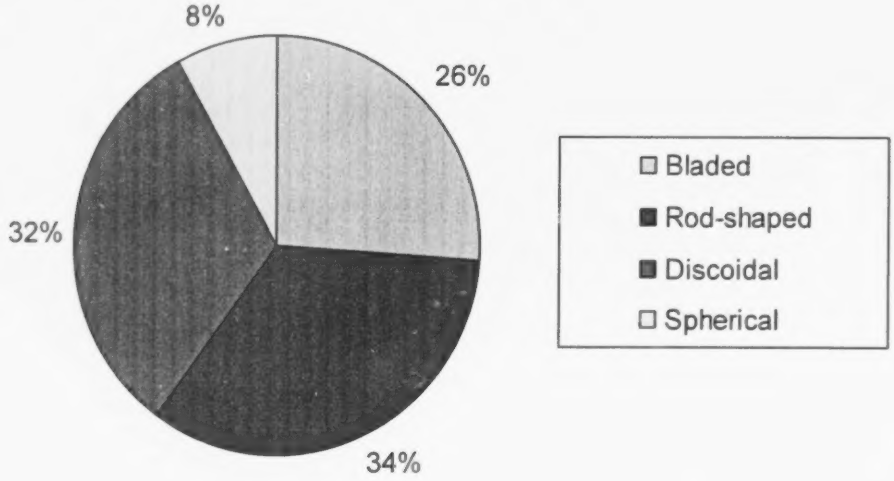


Average Roundness



Average = 0.68 (Rounded to Subrounded)
Standard deviation = 0.173

Average Sphericity



Average = 0.54 (Rod-shaped to Discoidal)
Standard deviation = 0.184

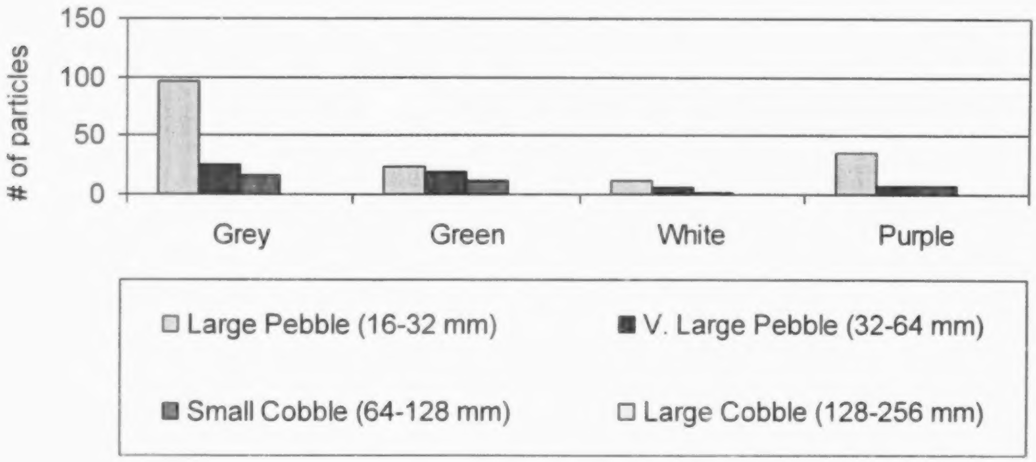
Color:

Sample # TW-116-01

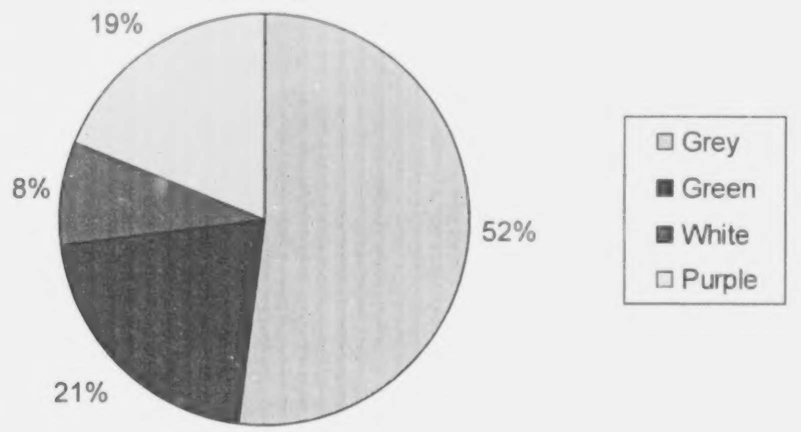
Number of Different Colors

Limited (<2)	Several (2-4)	Many (>4)
	X	

Color Classification vs Particle Class Size



Average Color Distribution



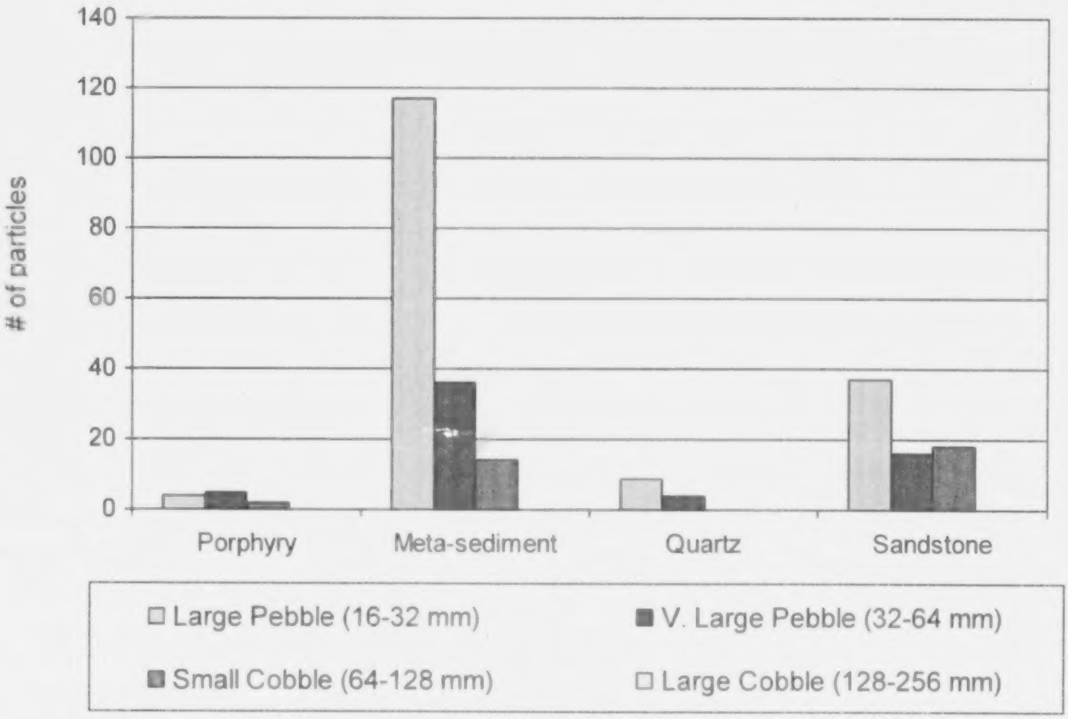
Rock Type

Number of Different Textural Types

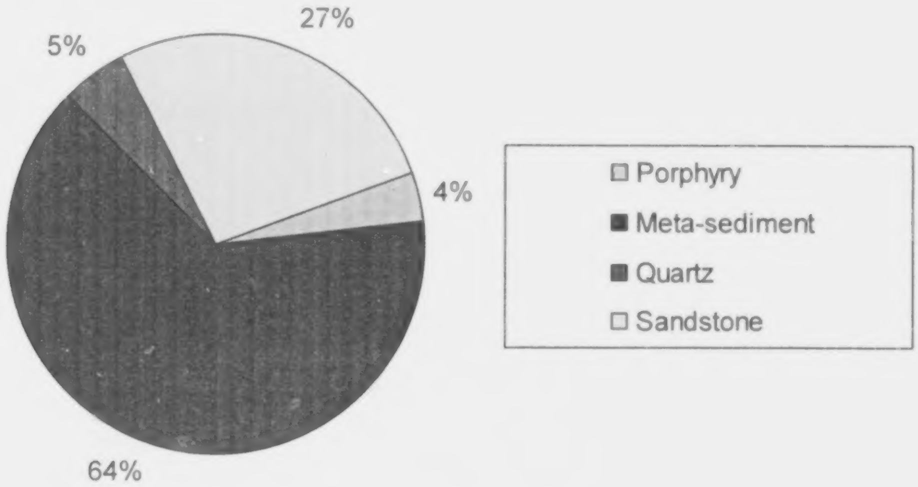
Sample # TW-116-01

Limited (<2)	Several (2-4)	Many (>4)
		X

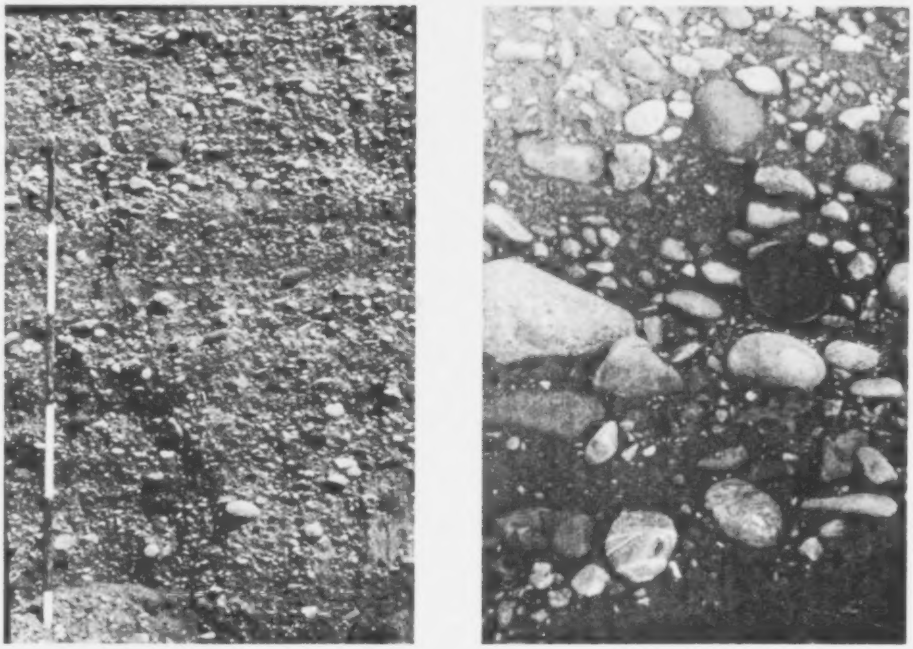
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-116-01



Large rounded pebble in a matrix (60%) of finer sand and gravel near Bois Gagnon, southeastern part of Gloucester County, northeastern New Brunswick.

Comments: A very large resource of mostly large pebble. Material consists of meta-sedimentary and sedimentary rock that is generally rounded to well rounded and not particularly colorful. Rated at a moderate to low potential (55%) (see Appendix D) for high quality decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Middle Landing

Sample #: TW-117-01 **Year:** 2001

Location: NTS: 21 P/05 County: Gloucester

Latitude: 47° 25.082" Longitude: 65° 42.144"

Zone: 20 UTM Northing: 5262700 UTM Easting: 333500

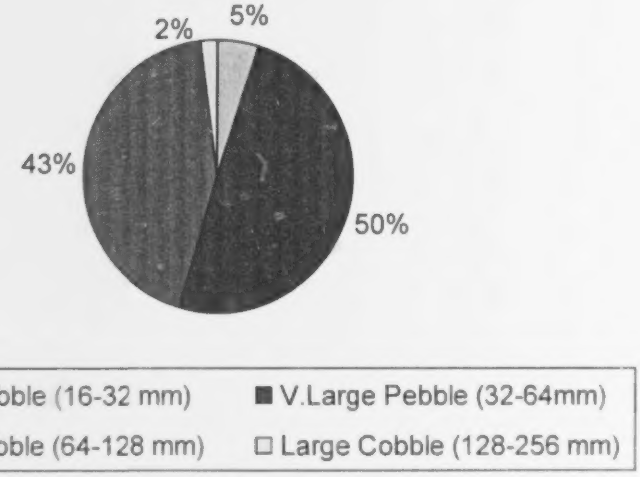
Description: A very large (> 5 ha) active pit, near east bank of Nepisiguit River, 2 km south of Middle Landing.

Particle Size Classification:

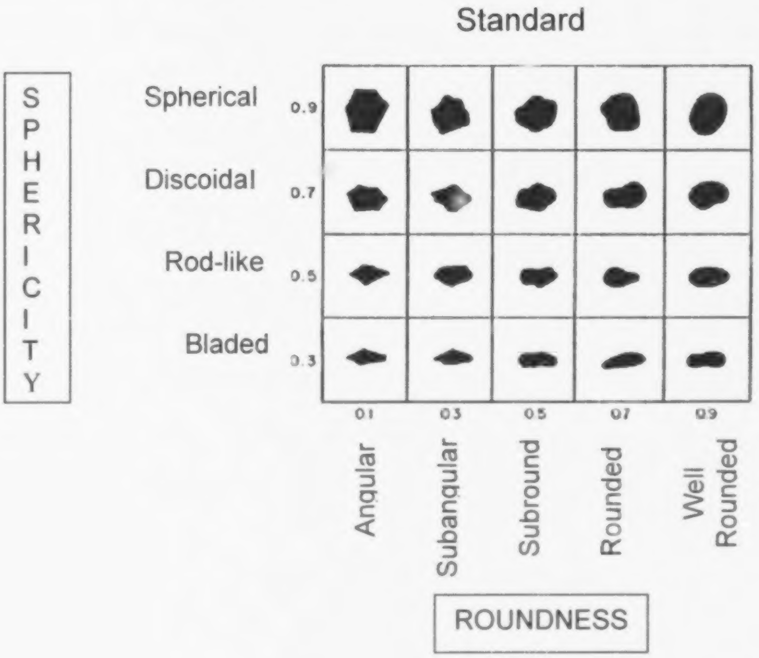
Pit–run Material

46 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**54 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

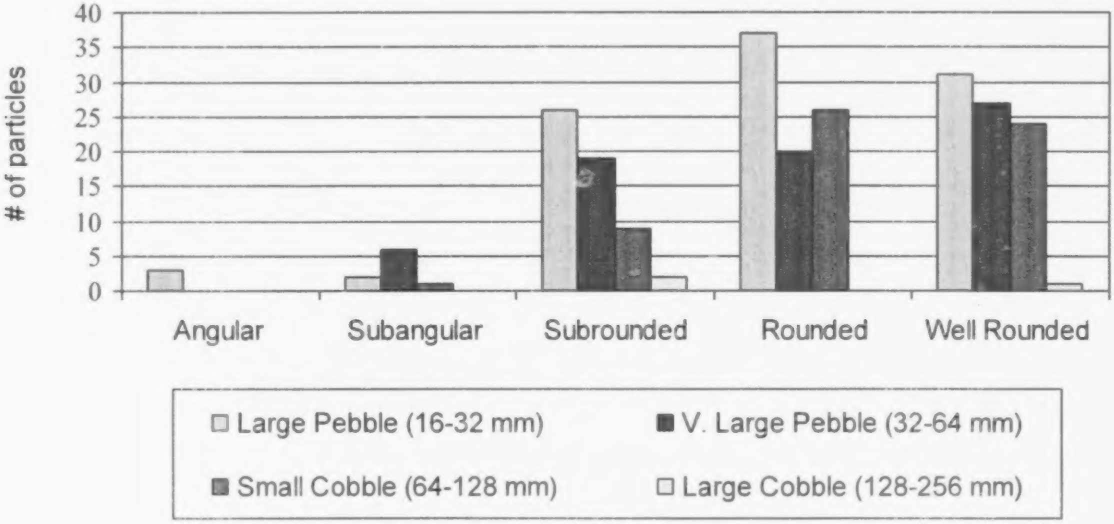


Roundness and Sphericity:



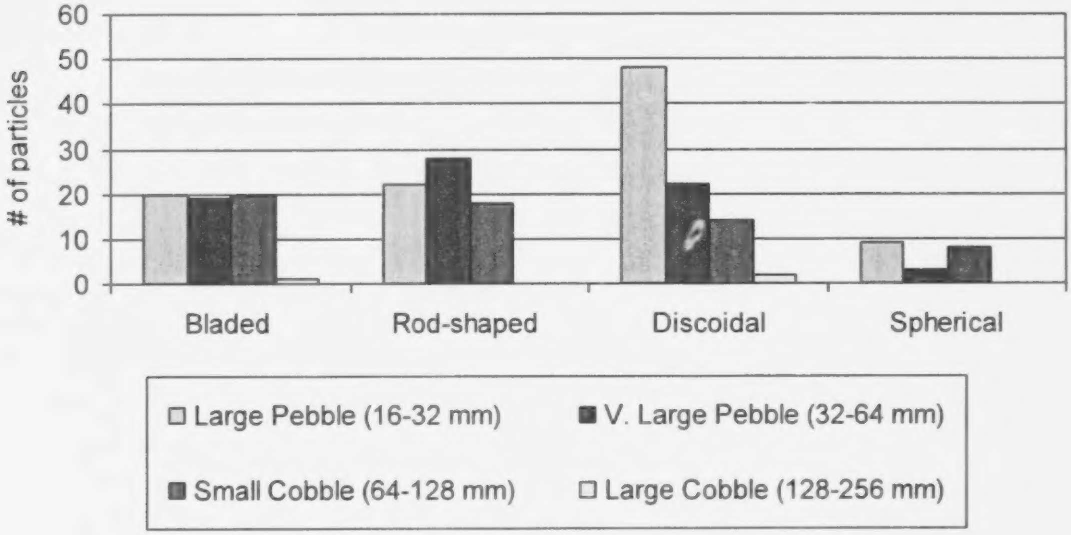
Roundness vs Particle Class Size

Sample #- TW-117-01

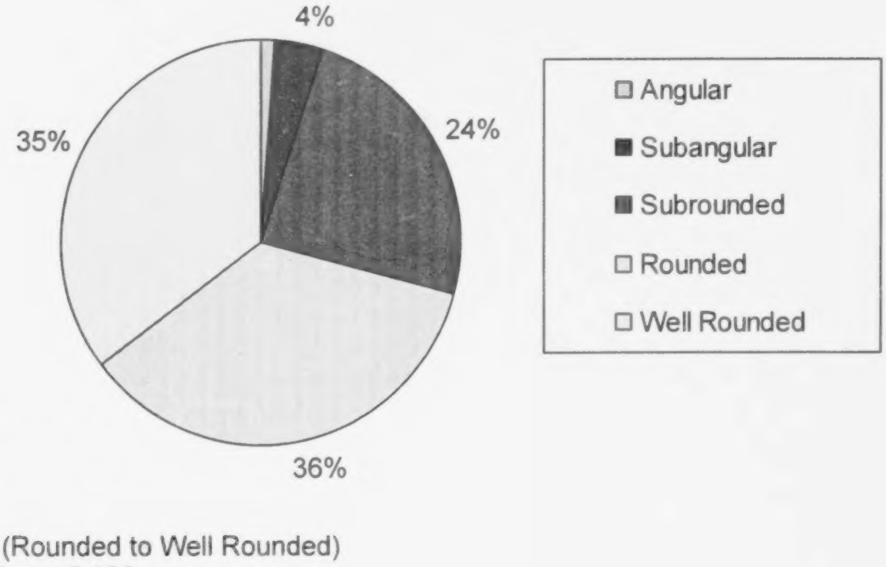


Sample # TW-117-01

Sphericity vs Particle Class Size

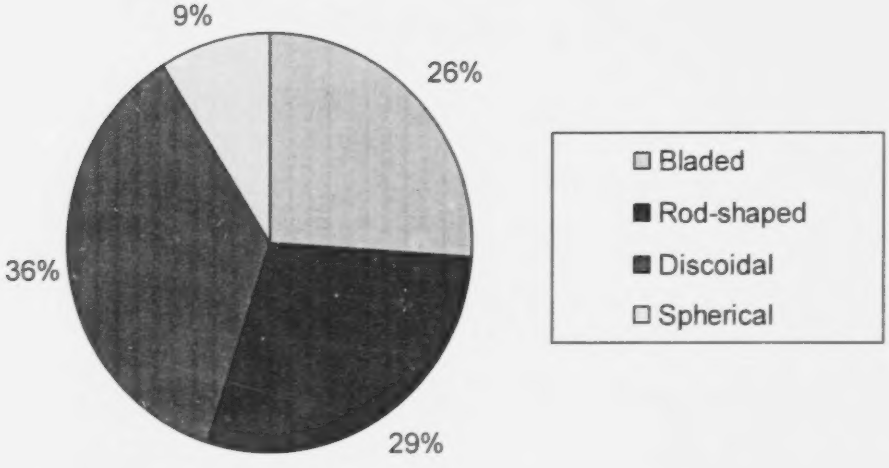


Average Roundness



Average = 0.70 (Rounded to Well Rounded)
Standard deviation = 0.186

Average Sphericity



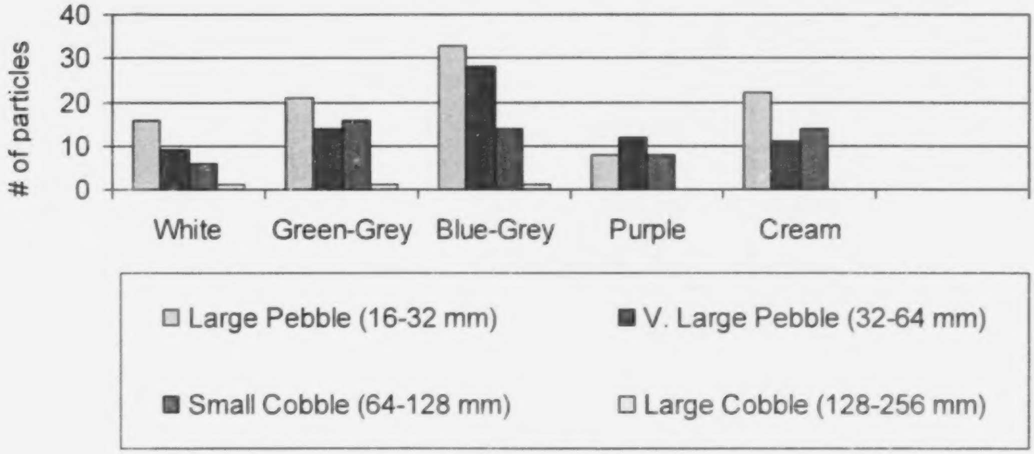
Average = 0.56 (Discoidal to Rod-shaped and Bladed)
Standard deviation = 0.189

Color:

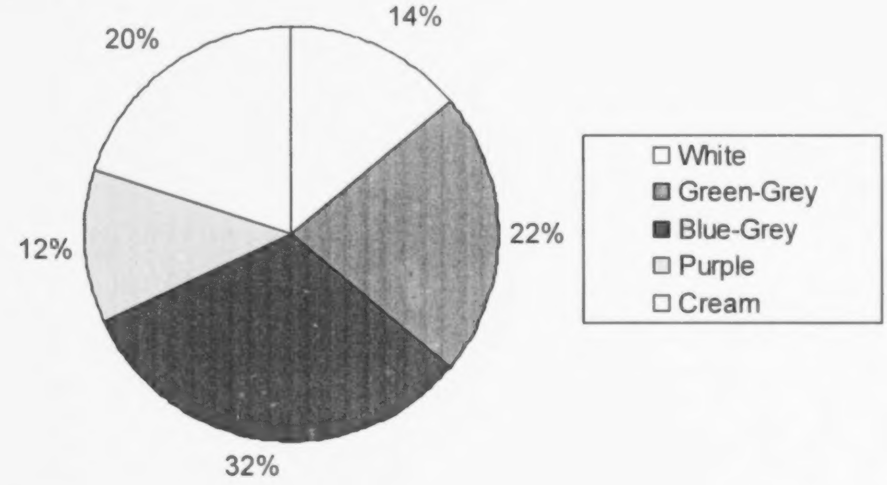
Sample # TW-117-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color



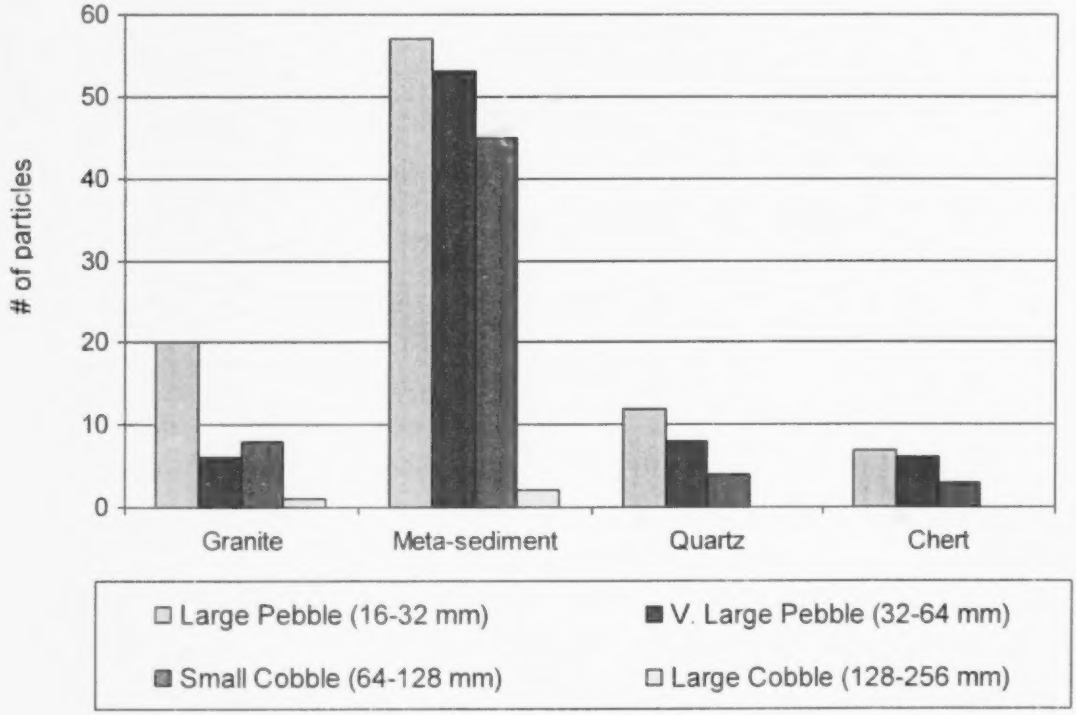
Rock Type:

Number of Different Textural Types

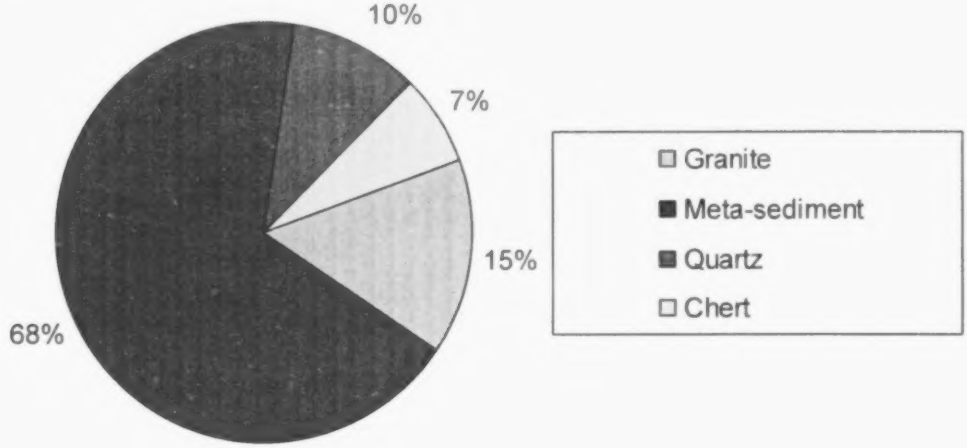
Sample # TW-117-01

Limited (<2)	Several (2-4)	Many (>4)
		X

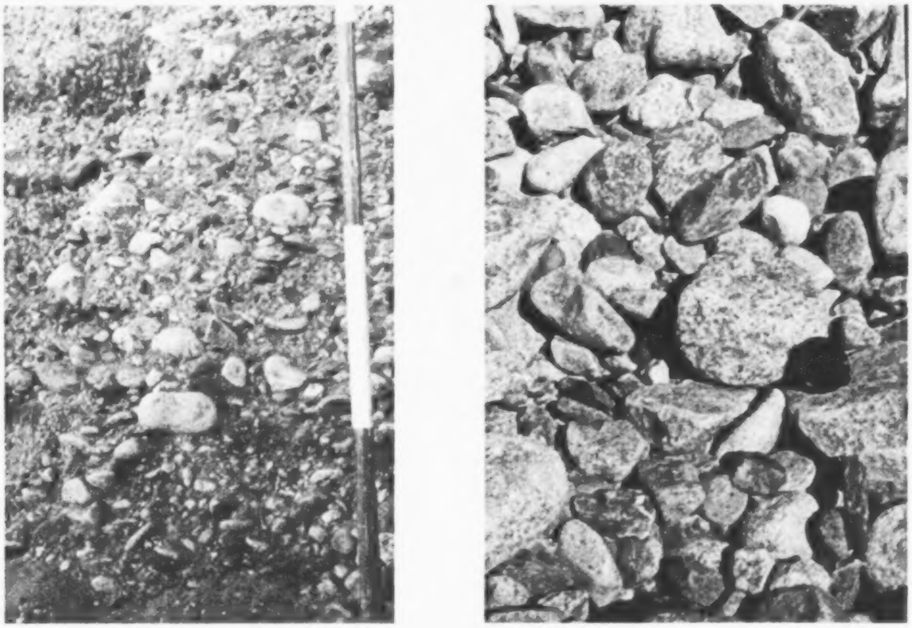
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-117-01



Typical pit face distribution and scree pile of grey to green pebble and cobble materials a few km south of Middle Landing, south-central part of Gloucester County, northern New Brunswick.

Comments: Appears to be a very large resource of rounded and dark colored, very large pebble and small cobble rated at moderate to high potential (73%) (see Appendix D) for decorative purposes.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Blue Mountain

Sample #: TW-118-01 **Year:** 2001

Location: NTS: 21 P/12 County: Gloucester

Latitude: 47° 31.058" Longitude: 65° 43.151"

Zone: 20 UTM Northing: 5266250 UTM Easting: 295050

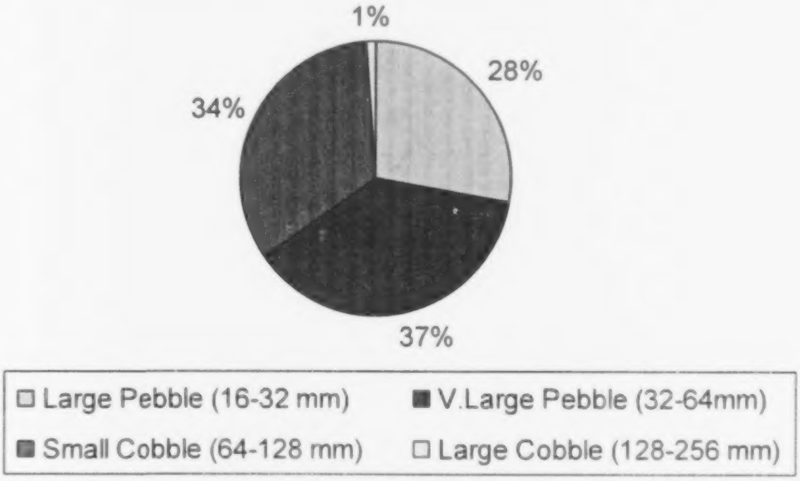
Description: Near the eastern limit of a extensive network of large (> 8 ha) active pits, east of Hwy # 430 and 4 km south of Blue Mountain Settlement.

Particle Size Classification:

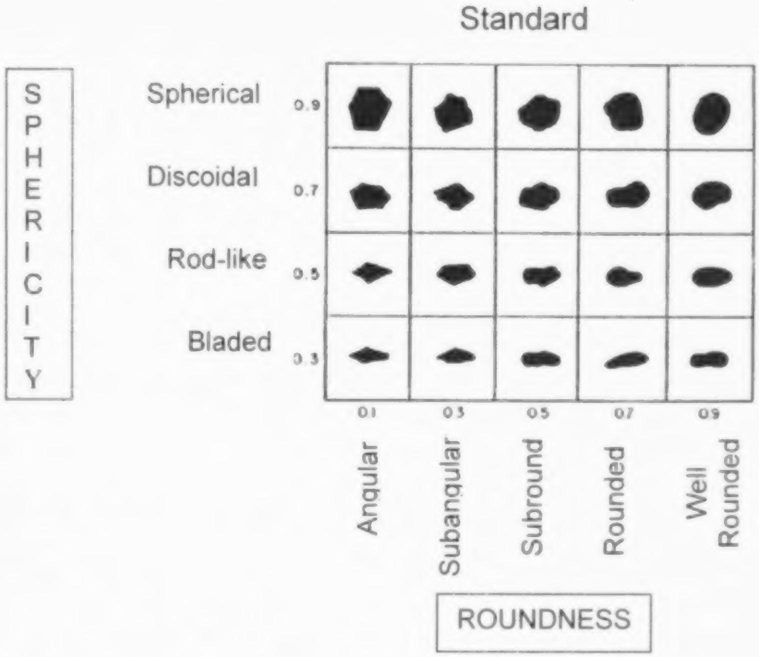
Pit–run Material

56 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**44 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

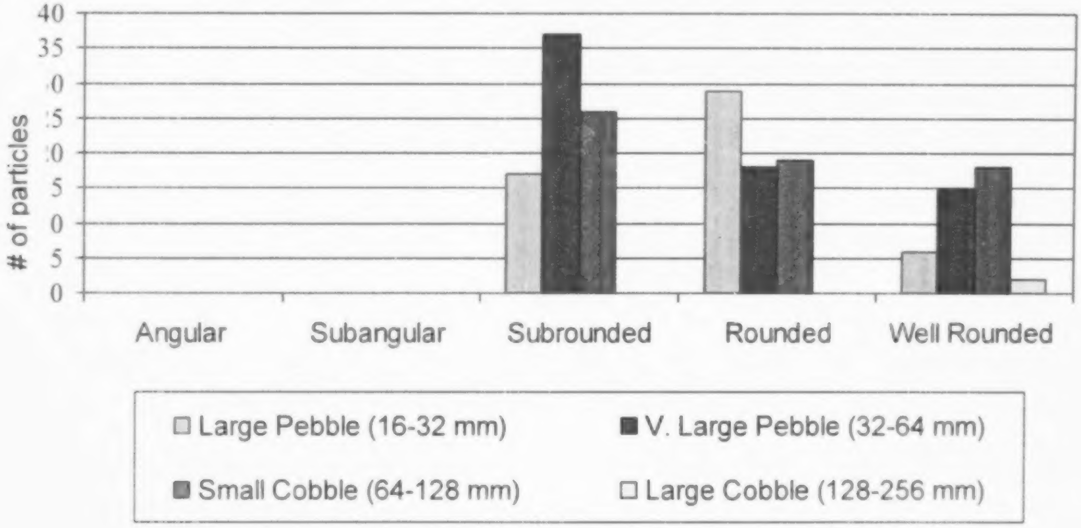


Roundness and Sphericity:



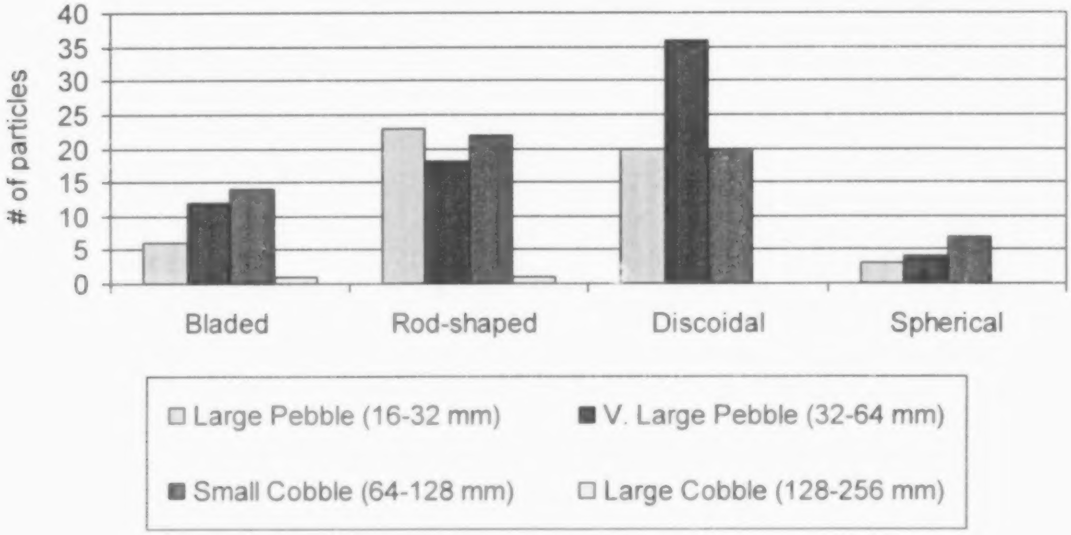
Roundness vs Particle Class Size

Sample # TW-118-01

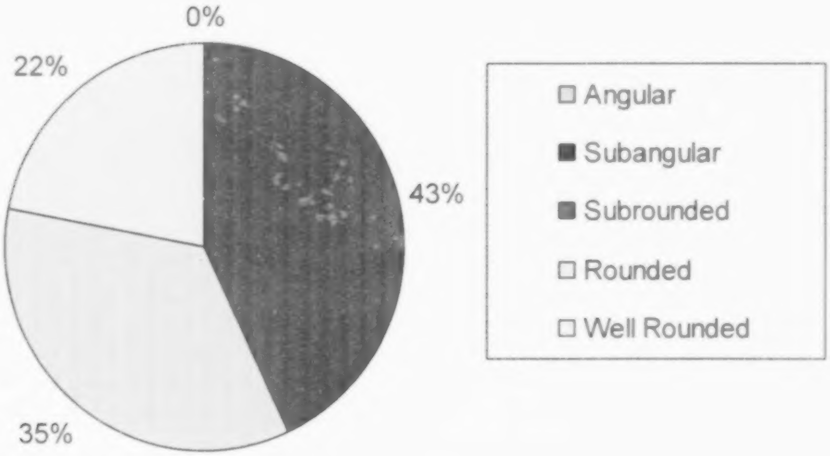


Sample # TW-118-01

Sphericity vs Particle Class Size

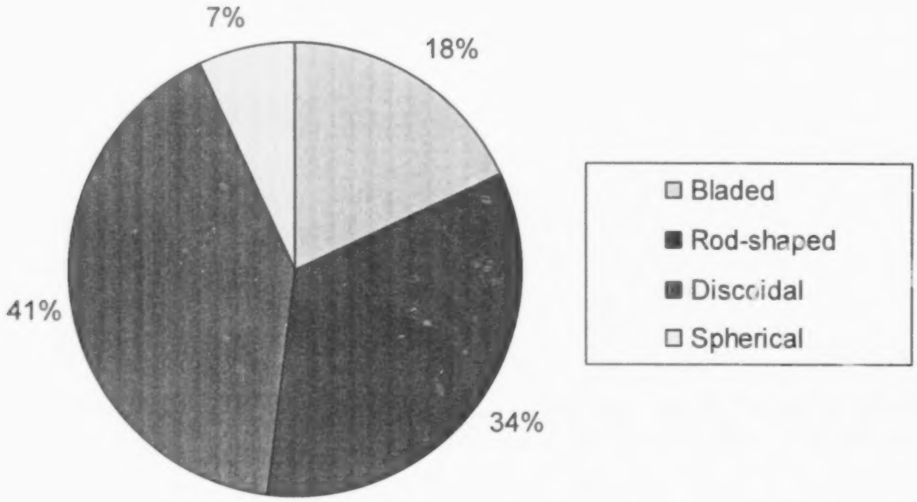


Average Roundness



Average = 0.660 (Subrounded to Rounded)
Standard deviation = 0.157

Average Sphericity



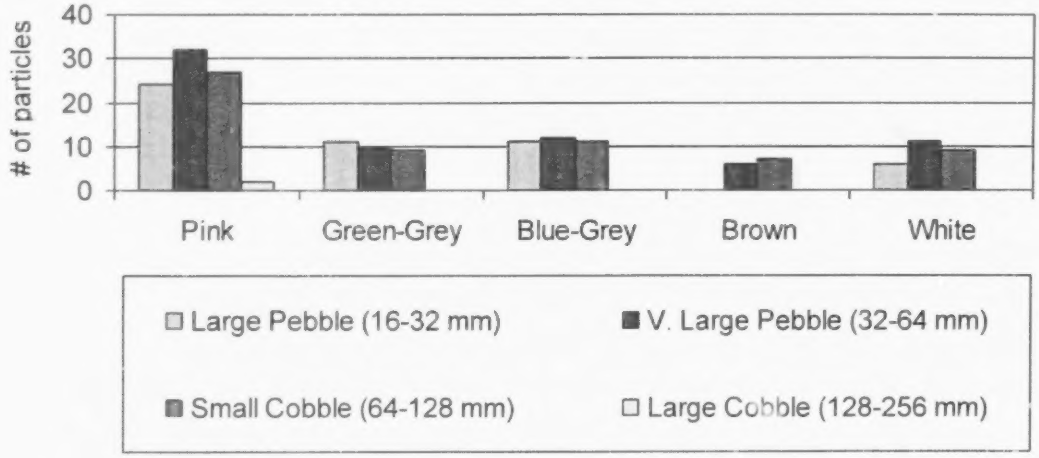
Average = 0.60 (Discoidal to Rod-shaped)
Standard deviation = 0.171

Color:

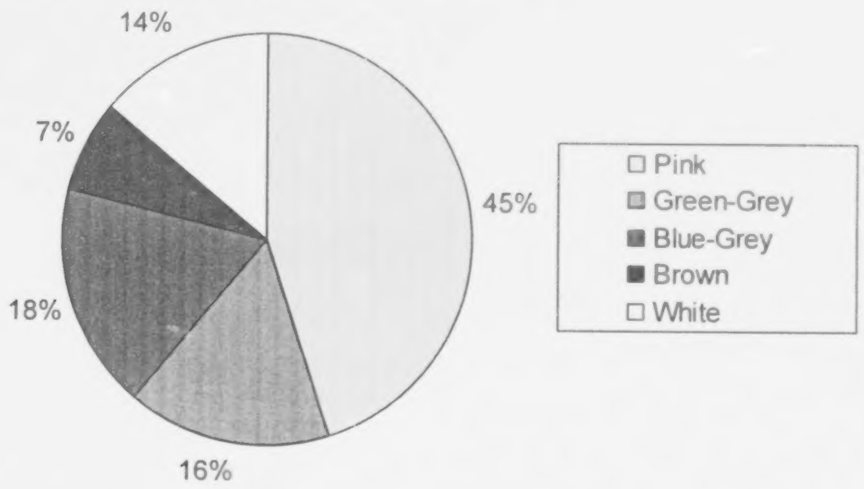
Sample # TW-118-01

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



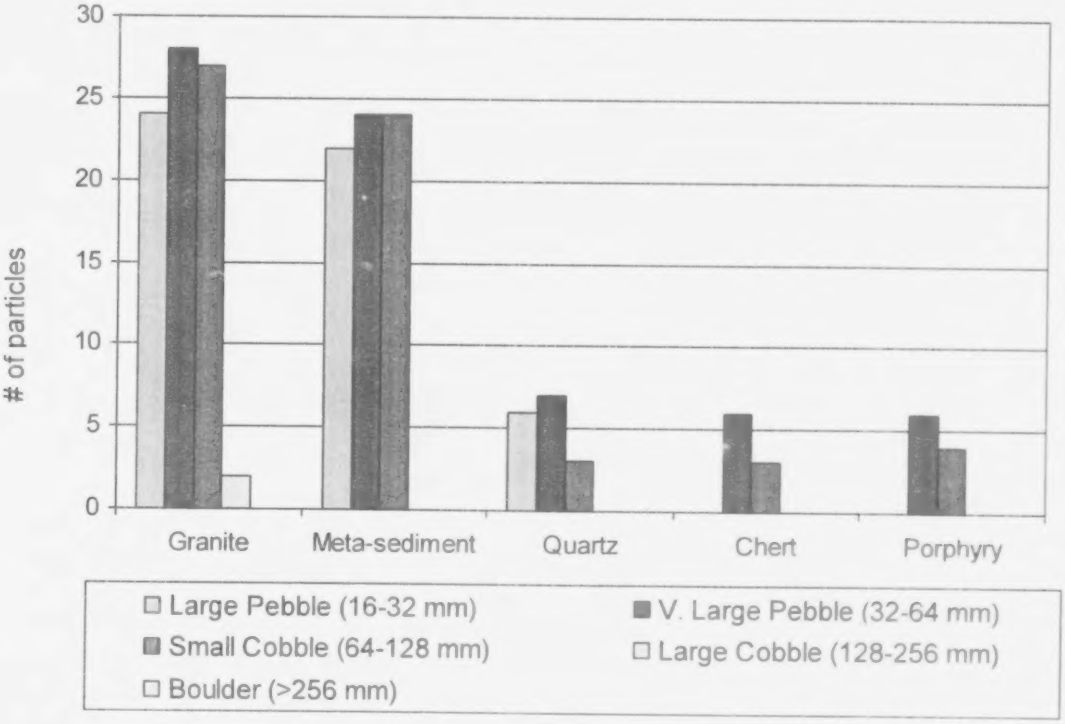
Rock Type:

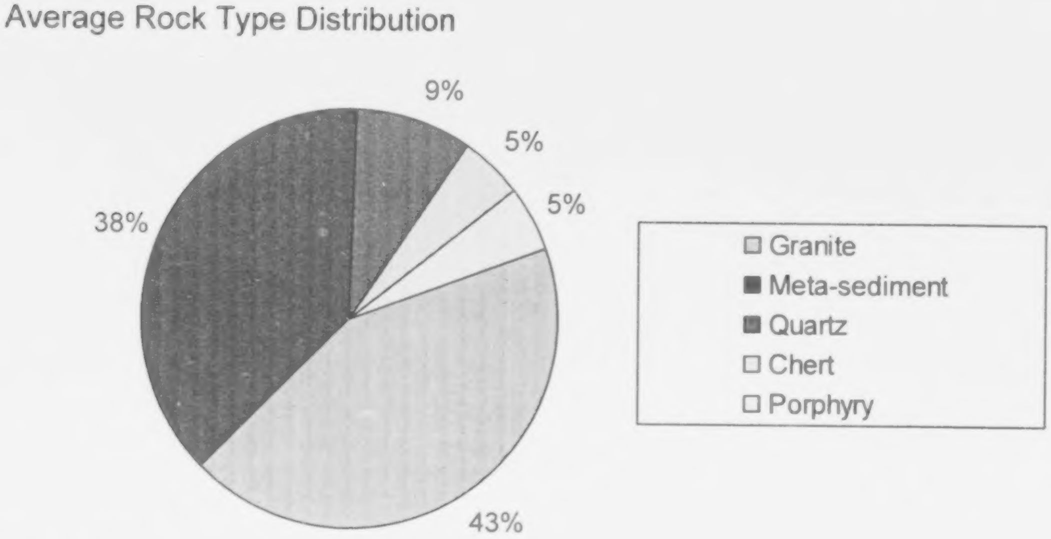
Number of Different Textural Types

Sample # TW-118-01

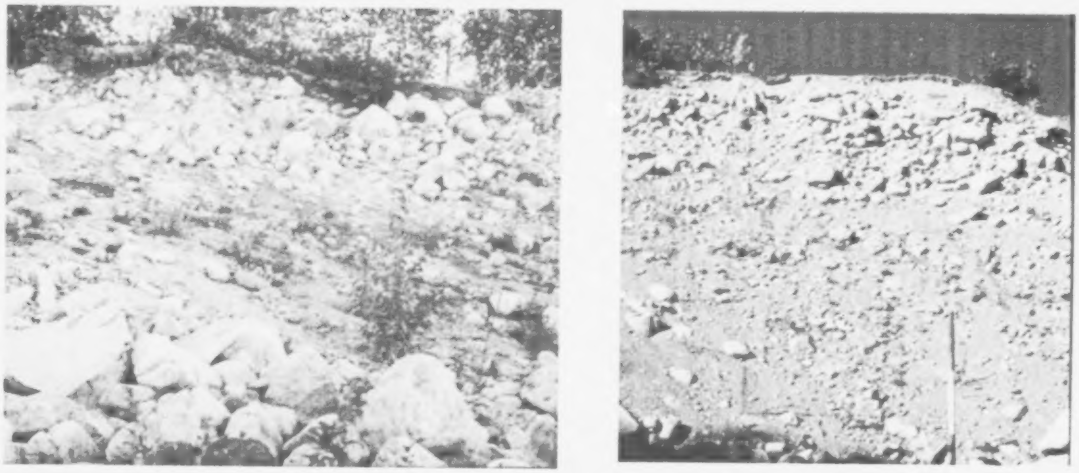
Limited (<2)	Several (2-4)	Many (>4)
		X

Rock Type vs Particle Class Size





Sample # TW-118-01



Scattered deposits of pink granite pebble, cobble and boulders from a large excavation south of Highway #430, near Blue Mountain, north-central part of Gloucester County, northern New Brunswick.

Comments: A large portion of the granular material at this site is characterized by gravel and sand that has been worked extensively over the years. Although there are scattered deposits of coarser material consisting in part of pink, granite pebble to boulders, the resource appears somewhat limited at this particular site with limited opportunity for expansion. Locally, the limited resource is rated moderate to high potential (70%) (see Appendix D) for decorative material. A substantial part of the mapped resource extends north of this site and Highway #430, partly situated on Crown and privately owned lands. Although excavated at various locations a large portion remains undeveloped, presenting unqualified potential for favorable decorative materials.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Trout Brook Lake

Sample #: TW-121-02 **Year:** 2001

Location: NTS: 21 I/05 County: Kent

Latitude: 46° 21.590" Longitude: 65° 43.606"

Zone: 20 UTM Northing: 5137600 UTM Easting: 290250

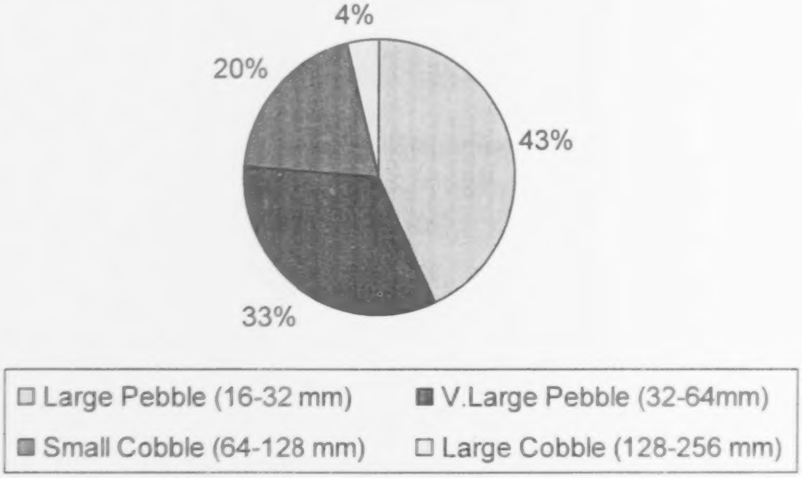
Description: A large (> 3 ha) inactive and partially reclaimed pit, 2.3 km southeast of Trout Brook Lake and adjacent the Salmon River Road, 7.5 north of its intersection with Hwy # 116.

Particle Size Classification:

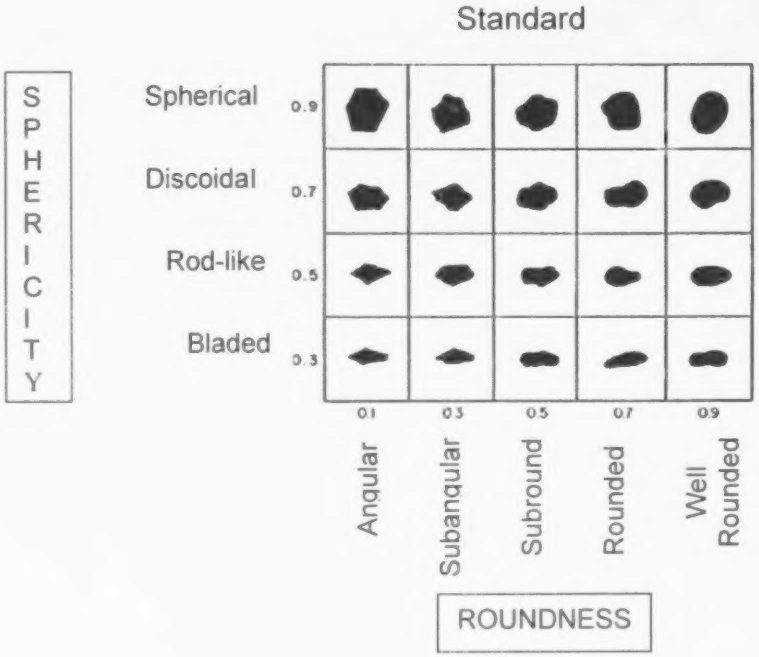
Pit–run Material

35 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**65 %** medium to very large pebble and, cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

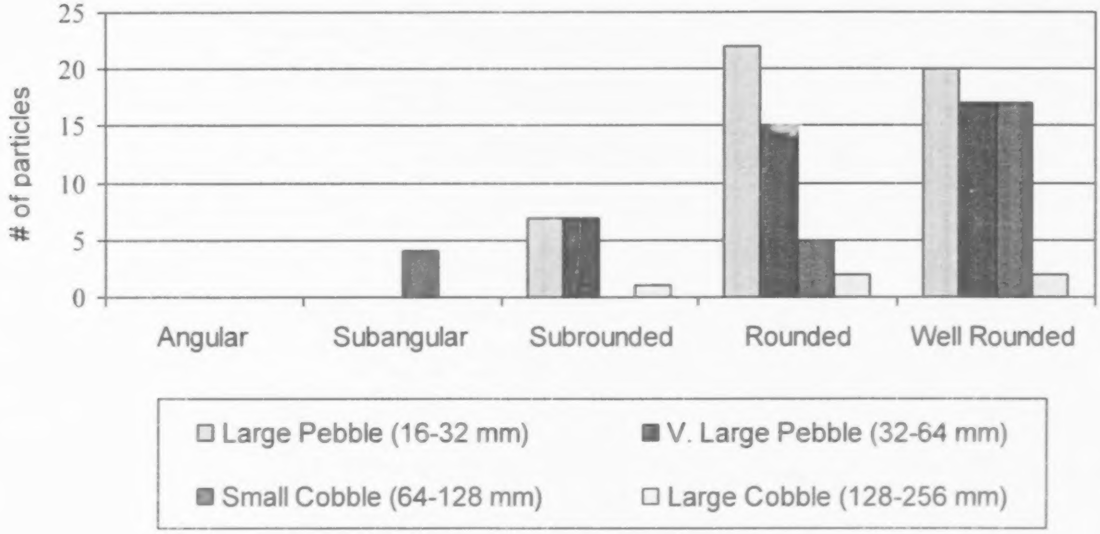


Roundness and Sphericity:



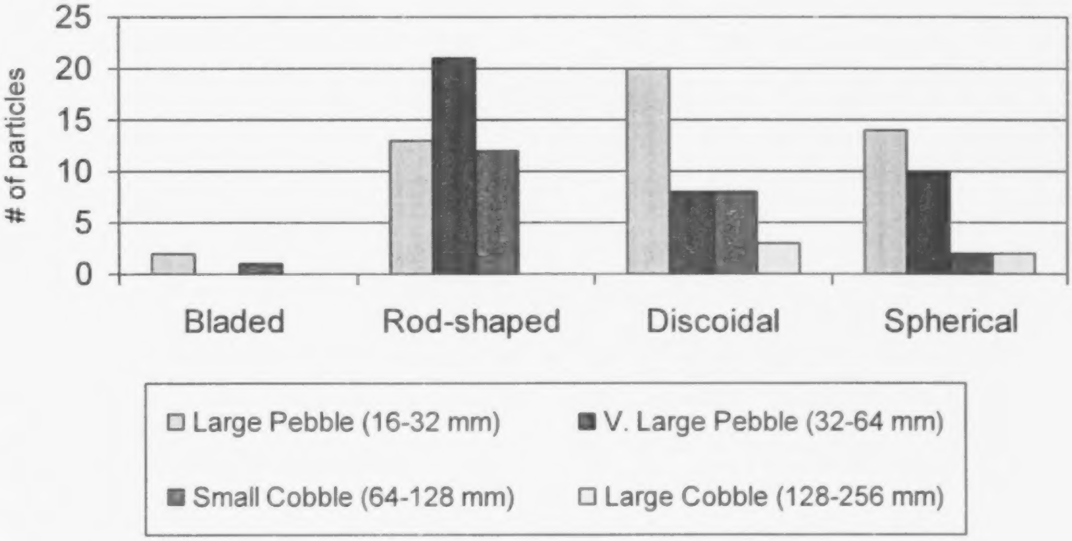
Roundness vs Particle Class Size

Sample # TW-121-02

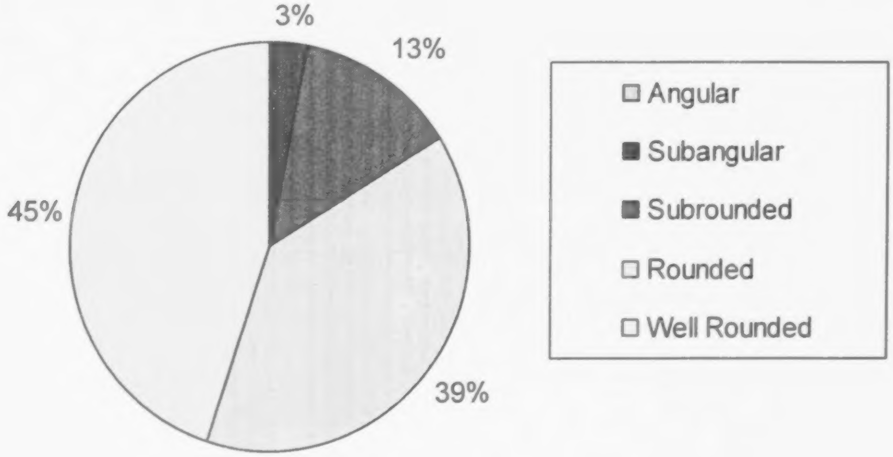


Sample # TW-121-02

Sphericity vs Particle Class Size

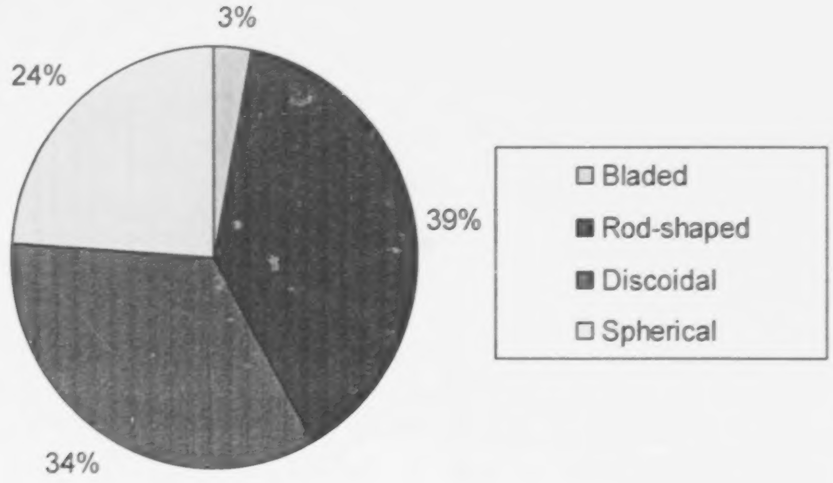


Average Roundness



Average = 0.610 (Well Rounded to Rounded)
Standard deviation = 0.215

Average Sphericity



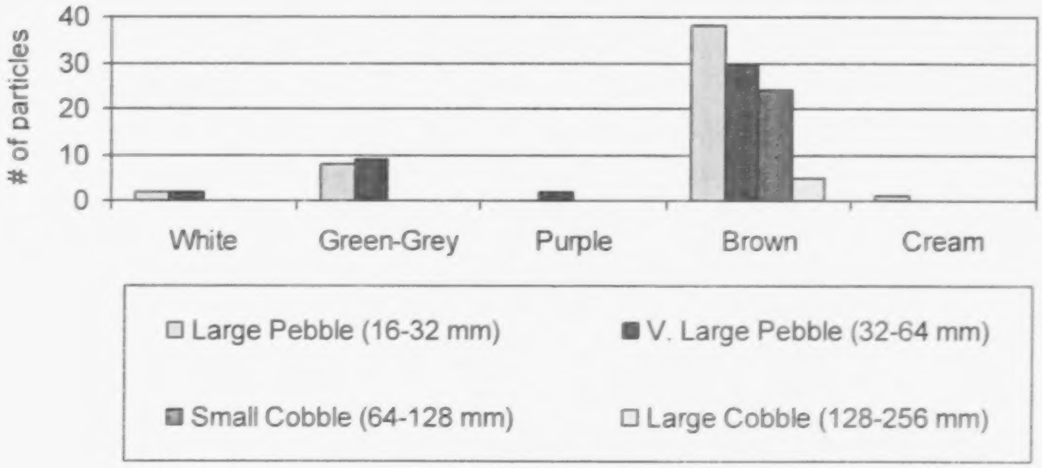
Average = 0.75 (Discoidal to Rod-shaped)
Standard deviation = 0.215

Color:

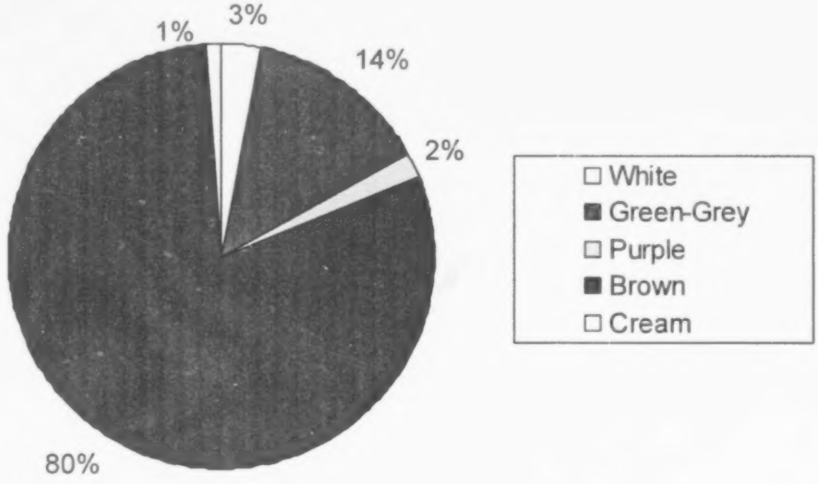
Sample # TW-121-02

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



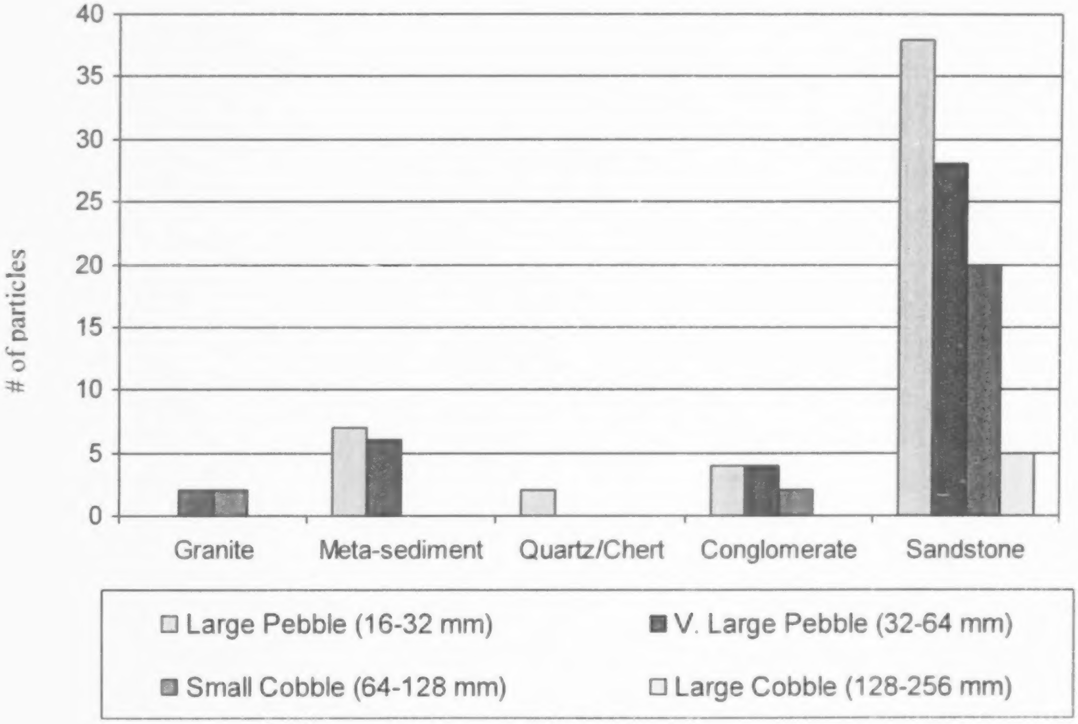
Rock Type:

Number of Different Textural Types

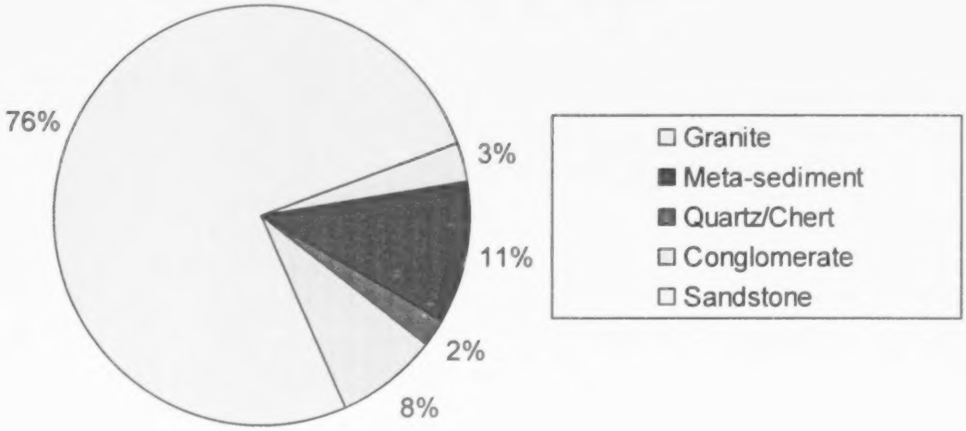
Sample # TW-121-02

Limited (<2)	Several (2-4)	Many (>4)
		X

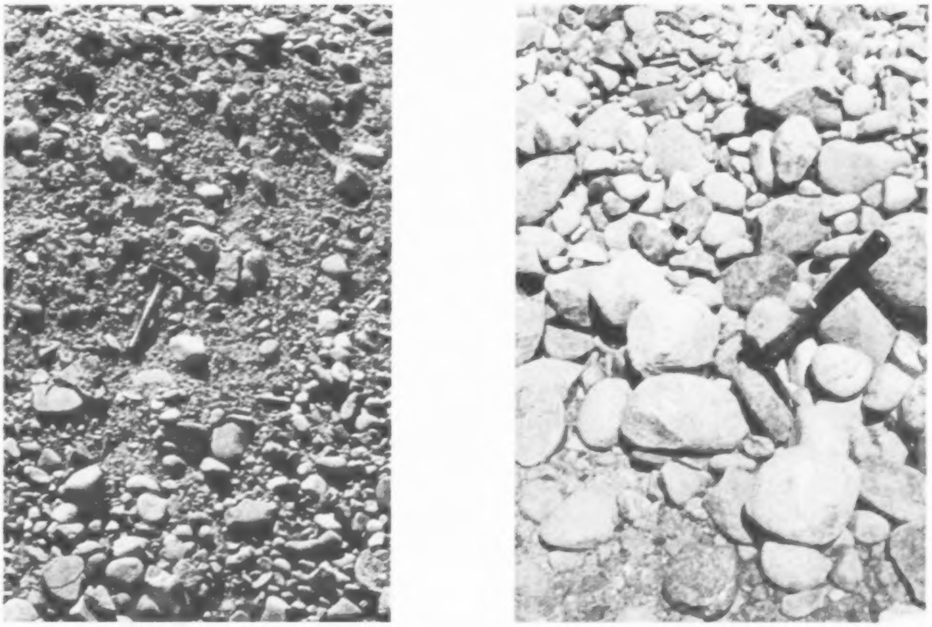
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-121-02



Rounded sandstone pebble and cobble north of Castaway, near the eastern boundary of Kent County, central New Brunswick.

Comments: A resource of well rounded, spherical brown sandstone pebble and cobble with moderate to high potential (75%) (see Appendix D) for well rounded decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: South Lake

Sample #: TW-122-02 **Year:** 2001

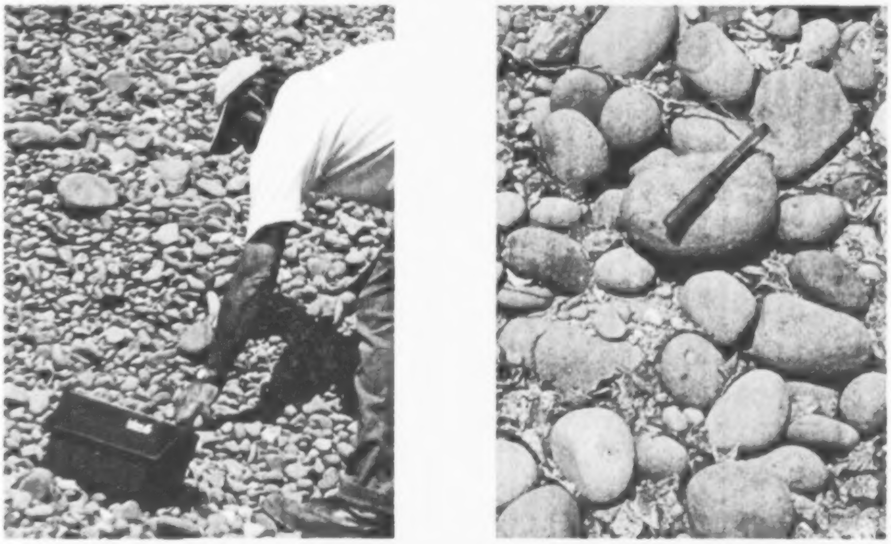
Location: NTS: 21 I/12 County: Northumberland

Latitude: 46° 39.345" Longitude: 65° 37.958"

Zone: 20 UTM Northing: 5170150 UTM Easting: 298800

Description: A very large (> 5 ha) active pit, 1.2 km southeast of South Lake and just north of the South Lake Road, 1.9 west of tits intersection with the Acadia Road.

Sample TW-122-02



Well rounded, brown sandstone pebble and small cobble near South Lake, southeastern part of Northumberland County, New Brunswick.

Comments: Not sampled. Mostly (80%) sand with up to 20% pebbles and cobbles comprised primarily (80%) of well rounded, brown sandstone with minor leucocratic granite and grey volcanics. Large stockpile of pebbles to cobbly material on site. A very good potential (unqualified) for unique, well rounded decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Despres Lake

Sample #: TW-123-02 **Year:** 2001

Location: NTS: 21 I/12 County: Northumberland

Latitude: 46° 39.181" Longitude: 65° 35.000"

Zone: 20 UTM Northing: 5169400 UTM Easting: 301800

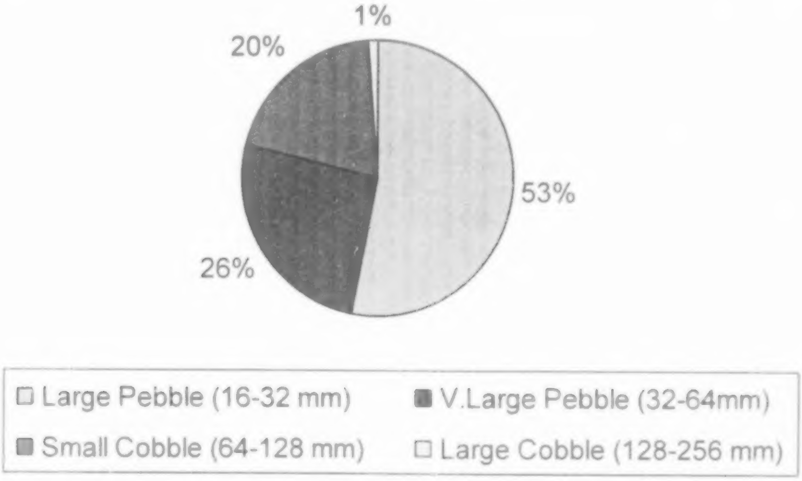
Description: A large (> 4 ha) inactive pit, north and adjacent the Despres Lake Road, 2.8 km east of its intersection with the Acadia Road and 2 km west of Despres Lake.

Particle Size Classification:

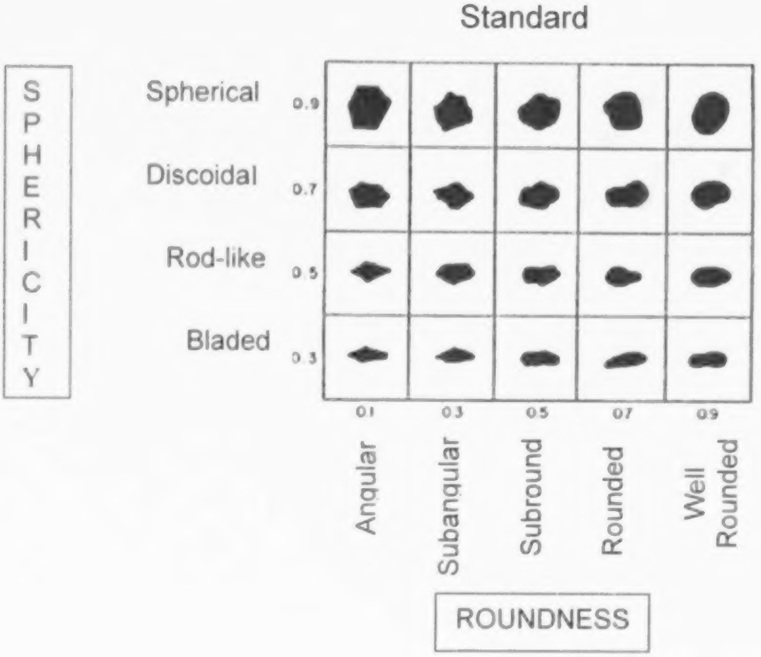
Pit–run Material

65 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**35 %** medium to very pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

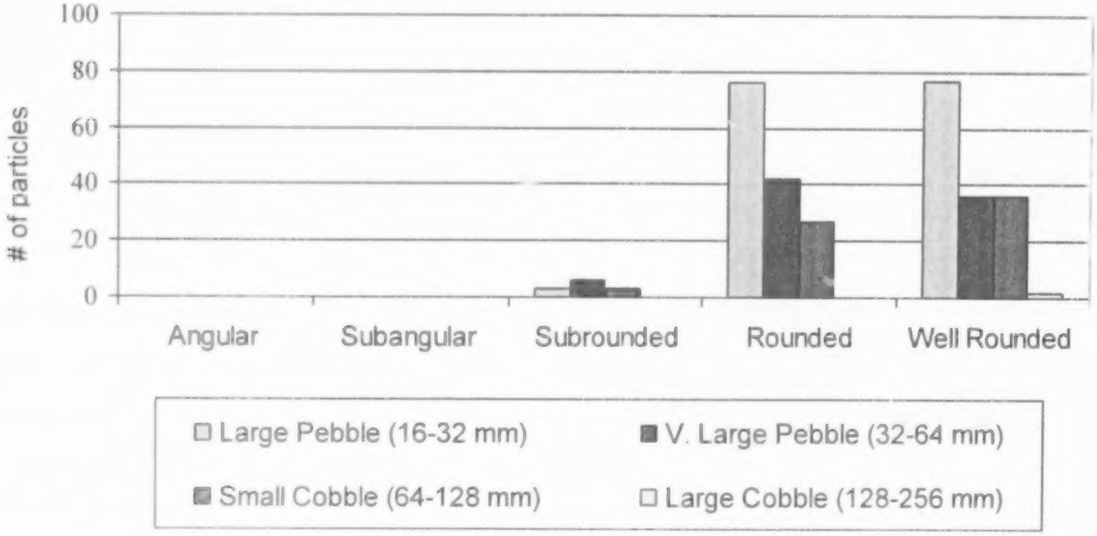


Roundness and Sphericity



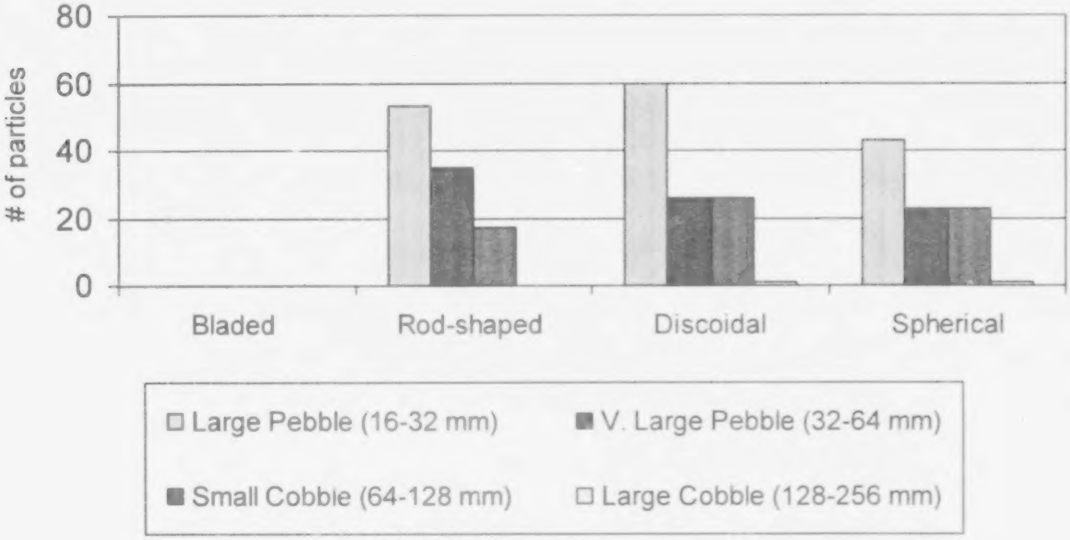
Roundness vs Particle Class Size

Sample # TW-123-02

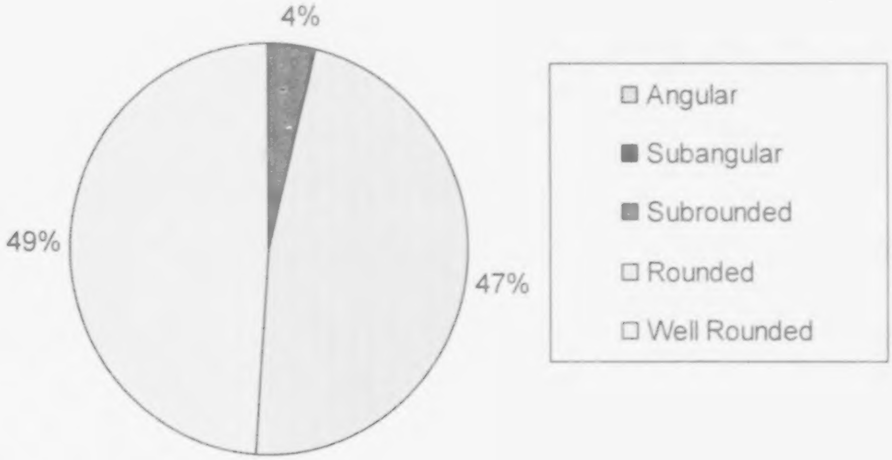


Sample # TW-123-02

Sphericity vs Particle Class Size

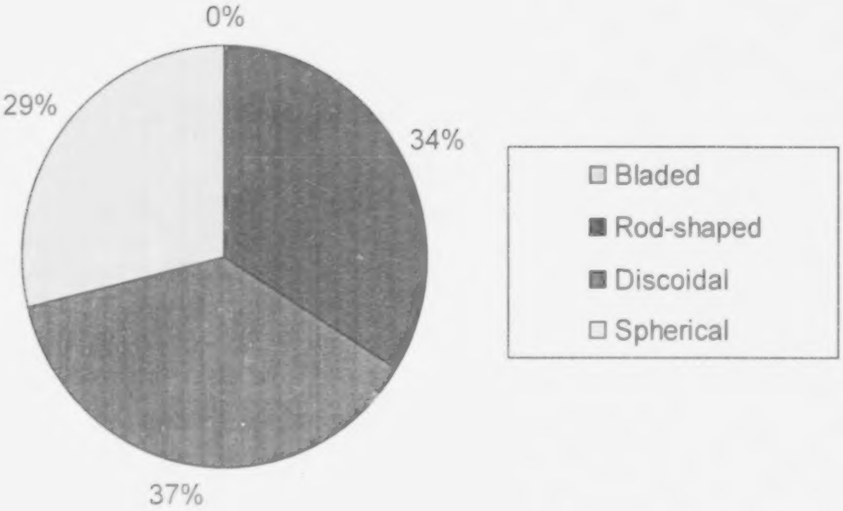


Average Roundness



Average = 0.780 (Well Rounded to Rounded)
Standard deviation = 0.117

Average Sphericity



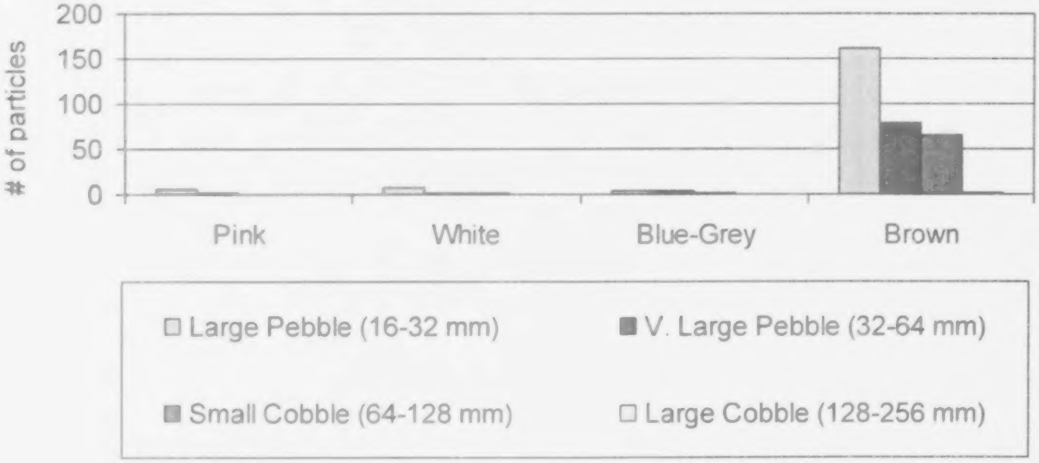
Average = 0.69 (Discoidal to Rod-shaped/and Spherical)
Standard deviation = 0.159

Color:

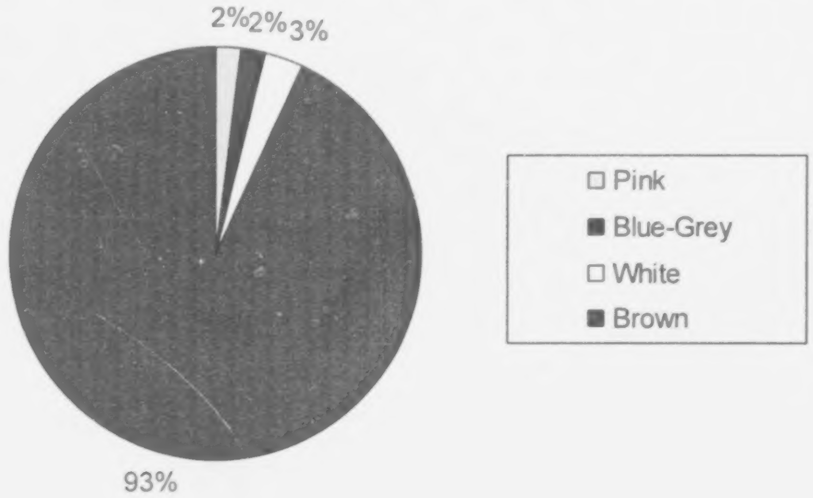
Sample # TW-123-02

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors		X	

Color Classification vs Particle Class Size



Average Color Distribution



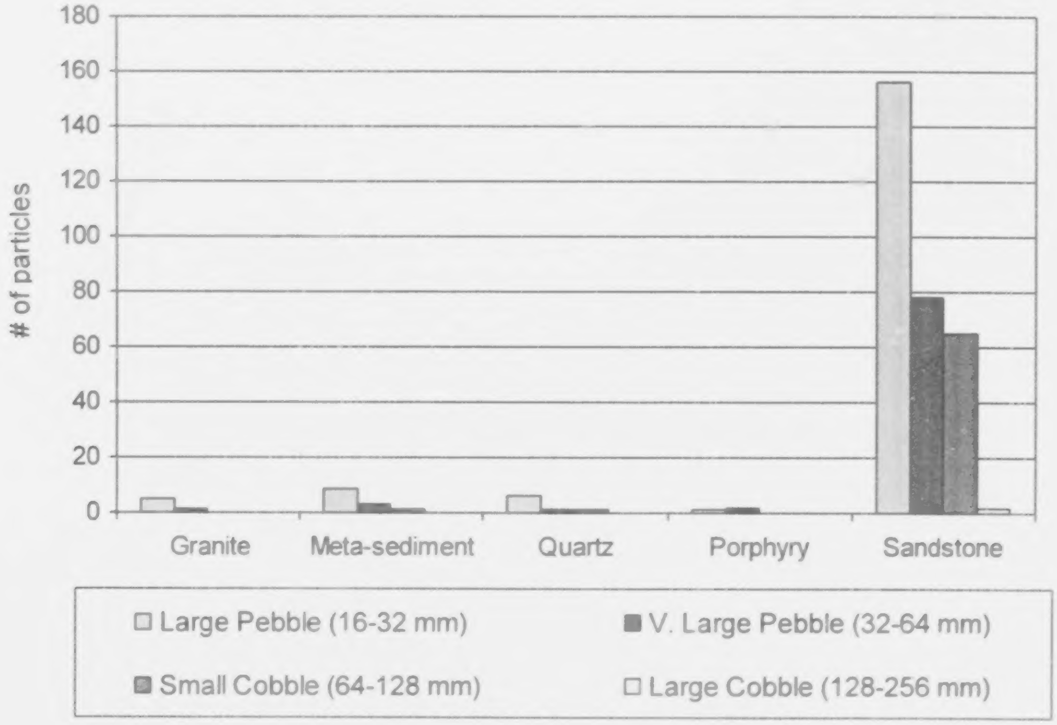
Rock Type:

Number of Different Textural Types

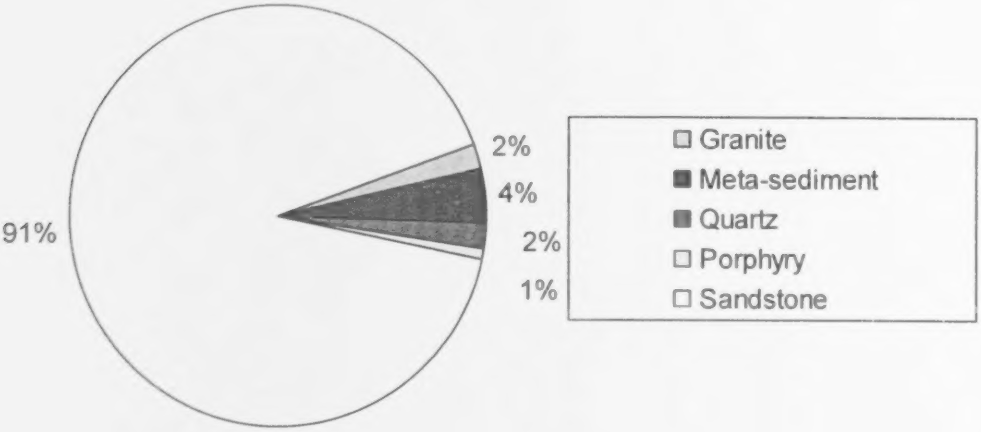
Sample # TW-123-02

Limited (<2)	Several (2-4)	Many (>4)
		X

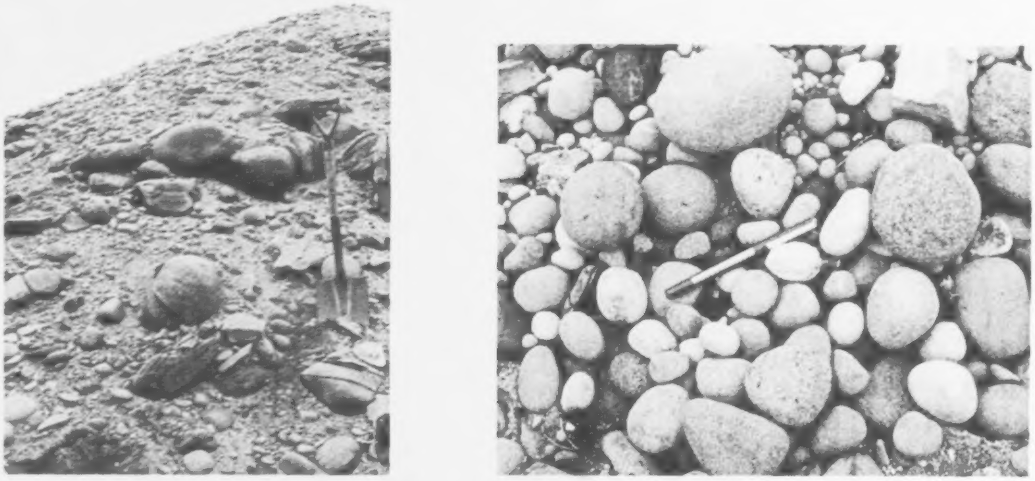
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-123-02



Well rounded, spheroid pebbles, cobbles and boulders of brown medium to coarse-grained sandstone a few km west of Despres Lake, southeastern part of Northumberland County, New Brunswick.

Comments: Mostly (80%) sand with up to 20% pebbles, cobbles and minor boulders of primarily of well rounded, brown sandstone. A moderate to high potential (75%) (see Appendix D) for uniquely rounded material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Valley Forest Road

Sample #: TW-124-02 **Year**: 2001

Location: NTS: 21 J/03 County: York

Latitude: 46° 07.666" Longitude: 65° 07.094"

Zone: 20 UTM Northing: 5009900 UTM Easting: 645350

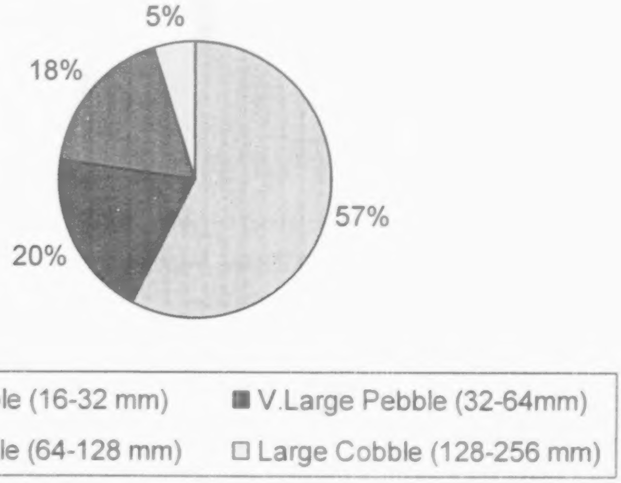
Description: A small (< 2 ha) active pit, south and adjacent the Valley Forest Road, 4.7 km eats of its intersection with Hwy # 104.

Particle Size Classification:

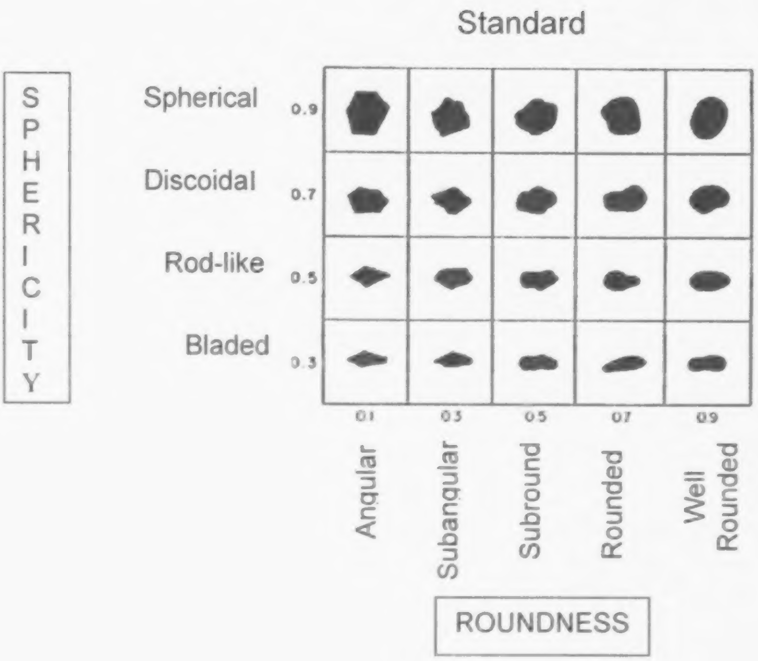
Pit–run Material

40 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**60 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

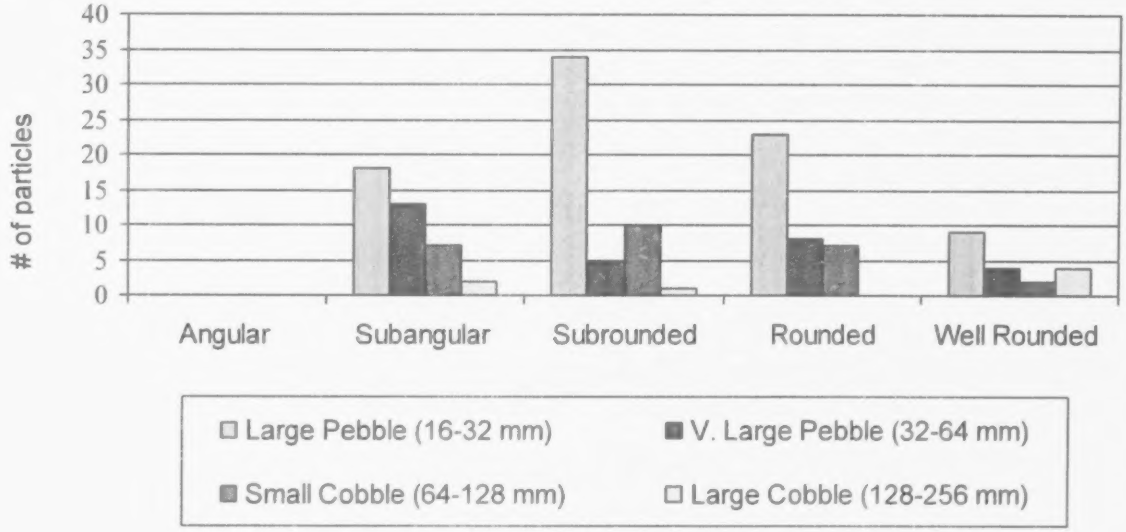


Roundness and Sphericity:



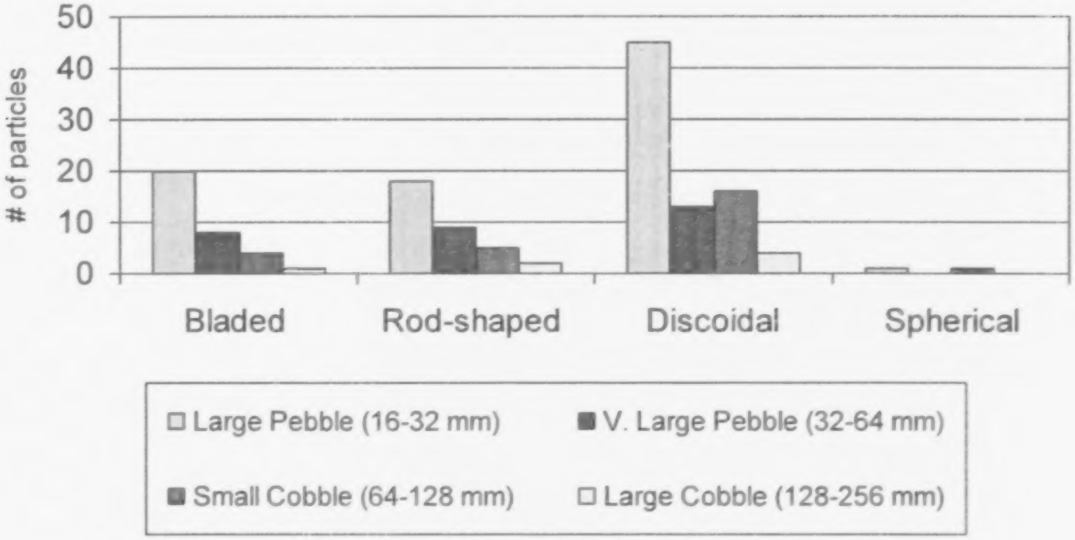
Roundness vs Particle Class Size

Sample # TW-124-02

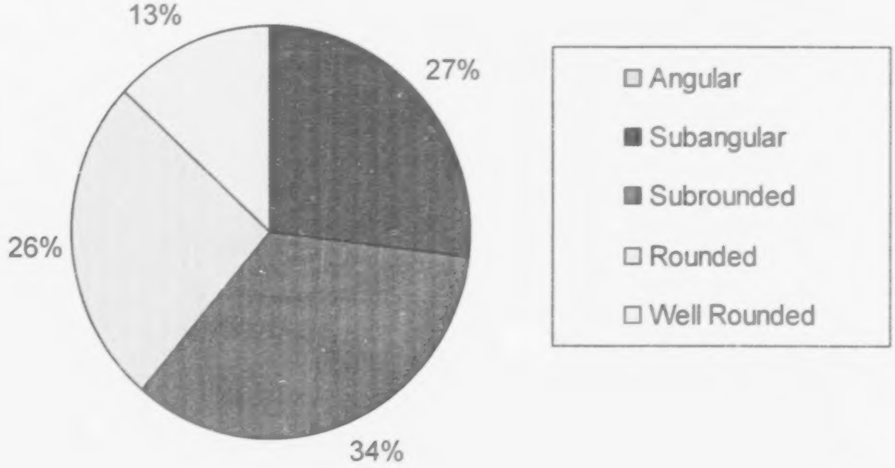


Sample # TW-124-02

Sphericity vs Particle Class Size

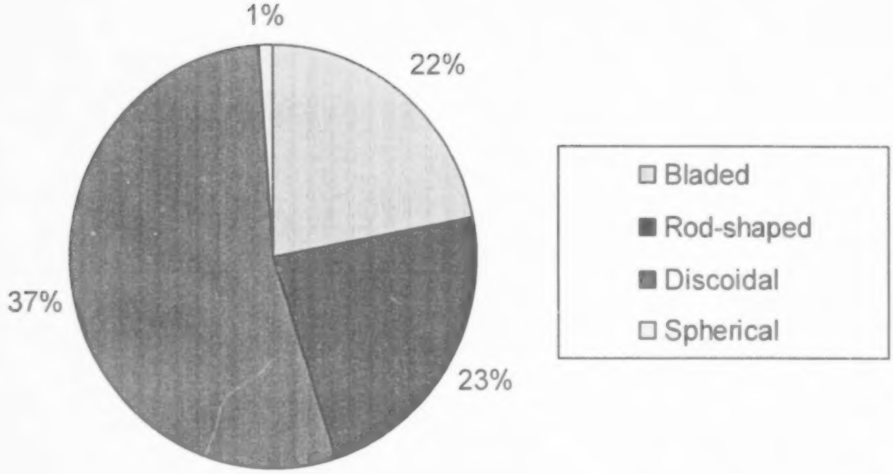


Average Roundness



Average = 0.530 (Subrounded to Rounded)
Standard deviation = 0.213

Average Sphericity



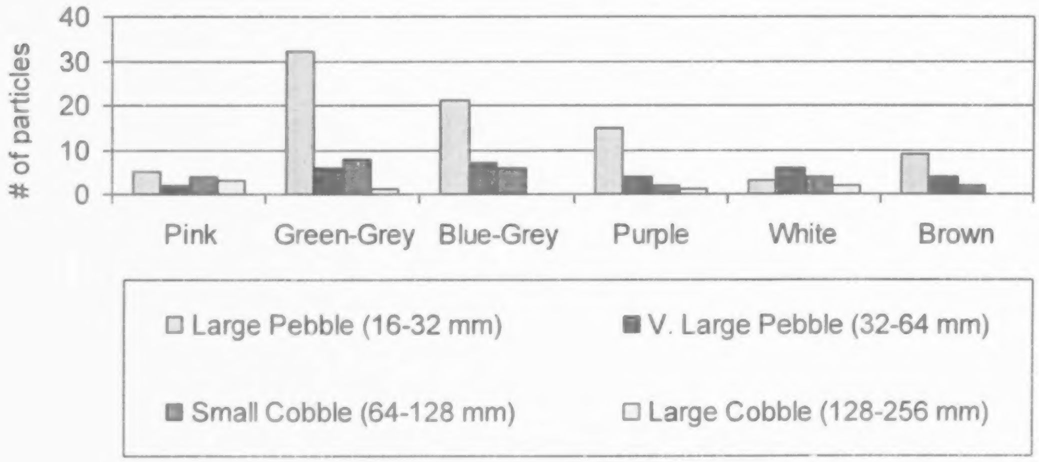
Average = 0.57 (Discoidal)
Standard deviation = 0.168

Color:

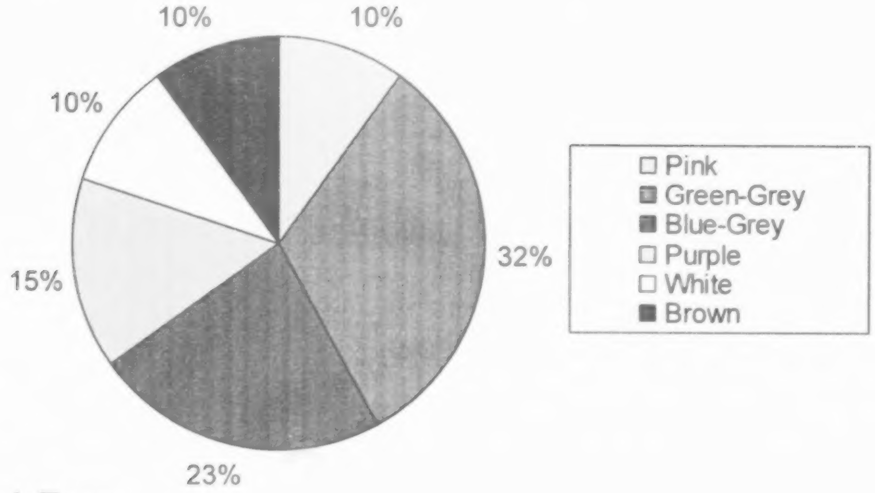
Sample # TW-124-02

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



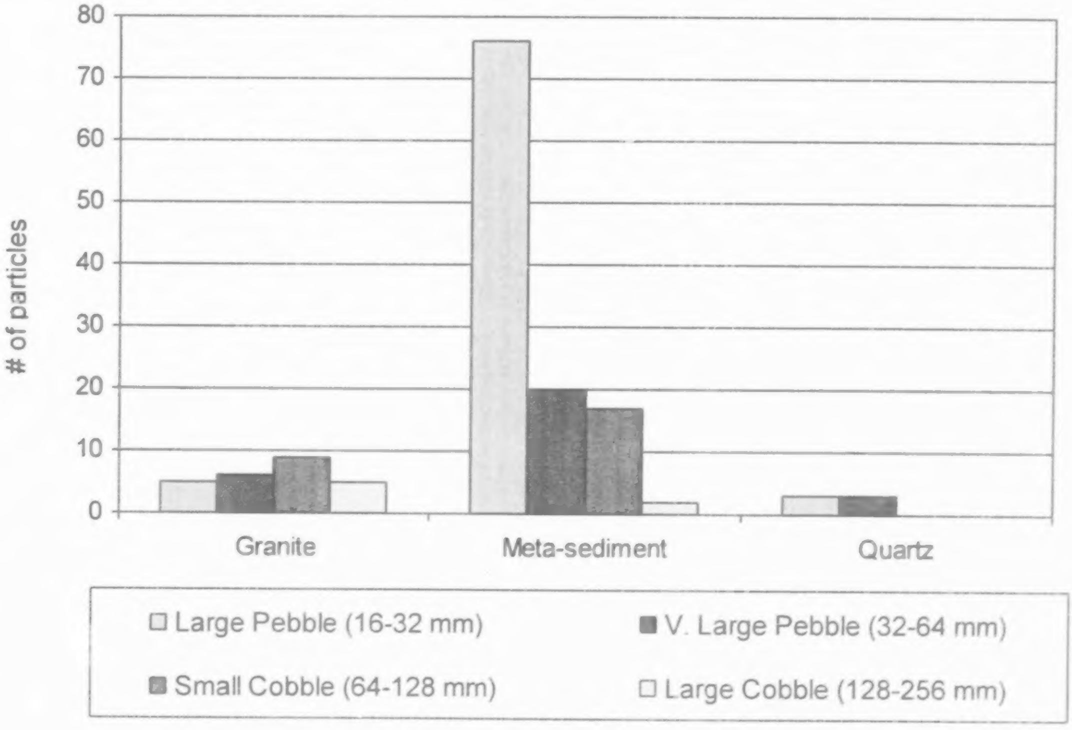
Rock Type:

Number of Different Textural Types

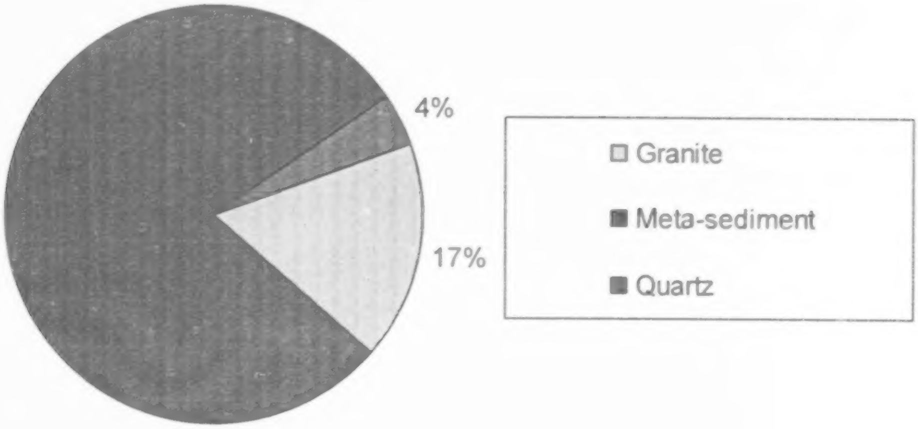
Sample # TW-124-02

Limited (<2)	Several (2-4)	Many (>4)
	X	

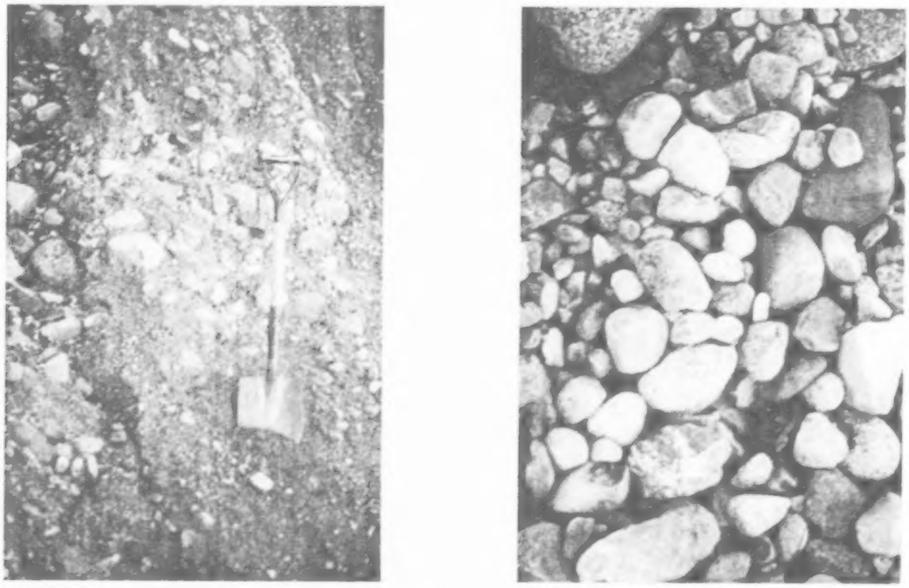
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-124-02



Subangular to rounded, large pebble to large cobble near Crabbe Mountain, west-central part of York County, west-central New Brunswick.

Comments: A wide selection of rounded to subangular, large pebble to large cobble with moderate potential (65%) (see Appendix D) for decorative material characterized by multiple colors of meta-sedimentary rocks and granite. Not a Crown Land pit. Size of the resource is unknown.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: South Branch Cranberry Brook - Little Duck Lake

Sample #: TW-133-02 **Year:** 2001

Location: NTS: 21 G/11 County: York

Latitude: 45° 41.455" Longitude: 67° 16.466"

Zone: 19 UTM Northing: 5060850 UTM Easting: 634350

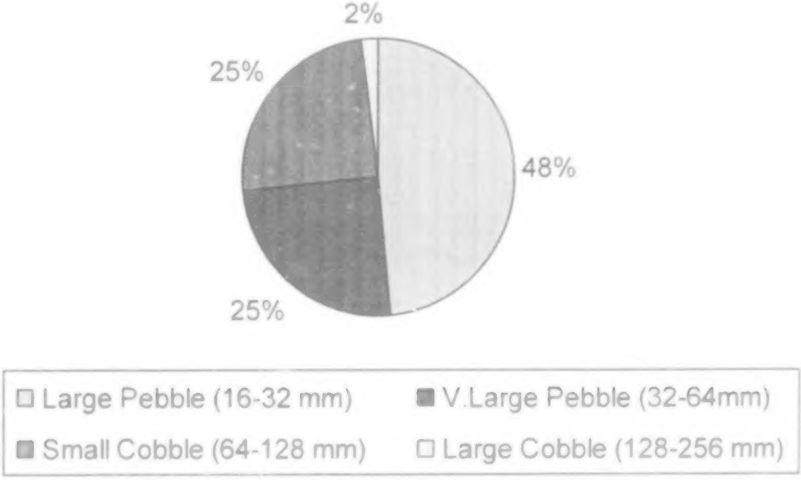
Description: A small (< 2 ha) inactive pit, east and adjacent the Little Duck Lake Road and 200 m north of Cranberry Brook, 3.8 east of Little Duck Lake.

Particle Size Classification:

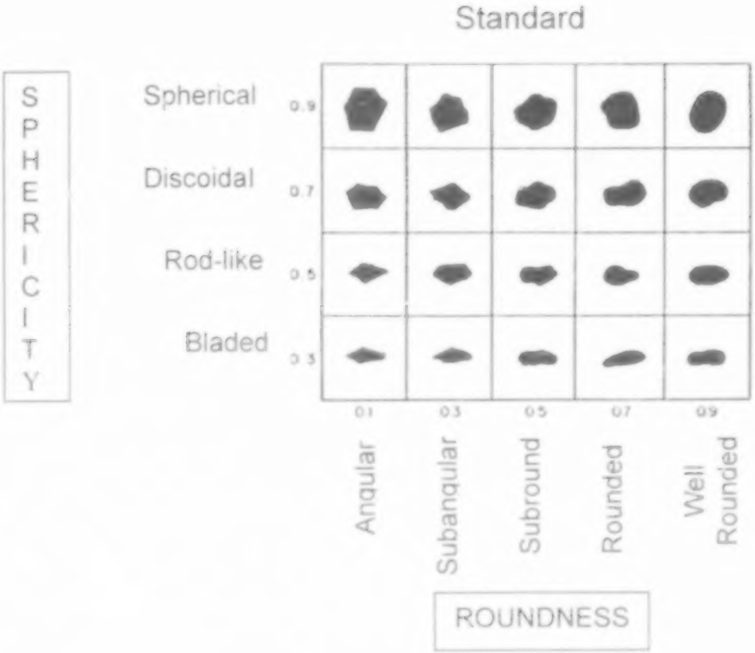
Pit–run Material

54 % clay, sand and small pebble (i.e. all material <25.4 mm or <1")	**36 %** medium to very large pebble and cobble (i.e. all material > 25.4 mm or >1")

Particle Size Classification for > 25.4mm Material

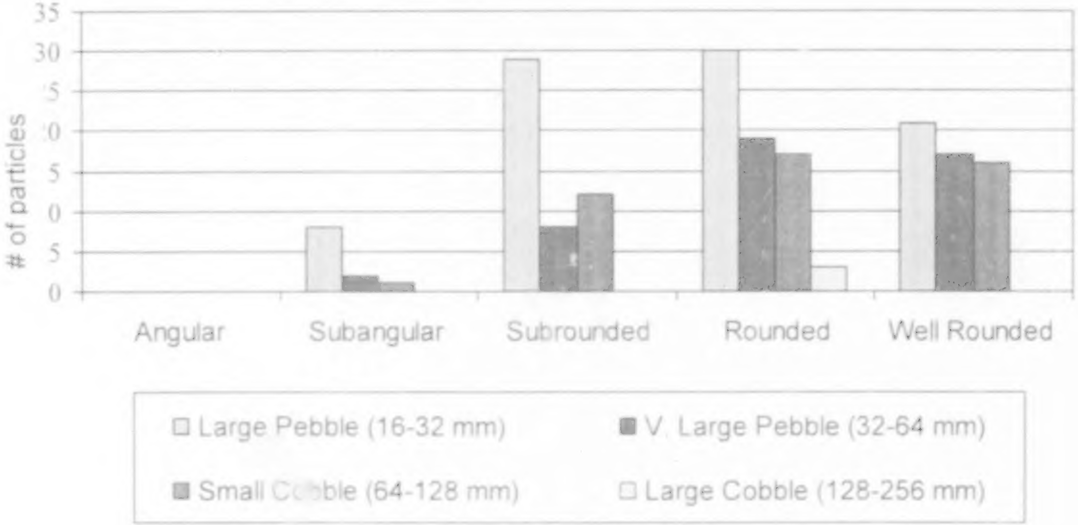


Roundness and Sphericity:



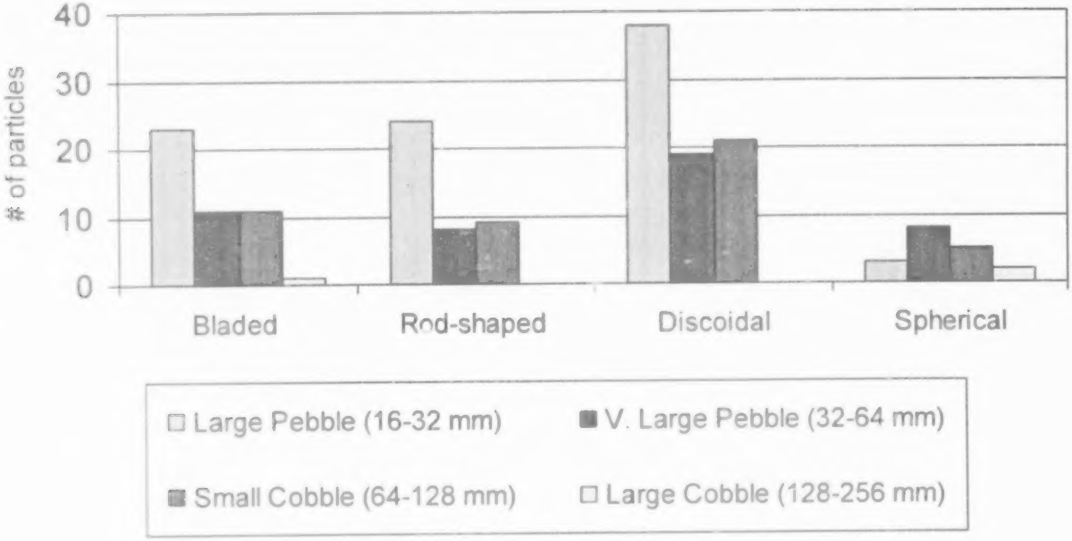
Roundness vs Particle Class Size

Sample # TW-133-02

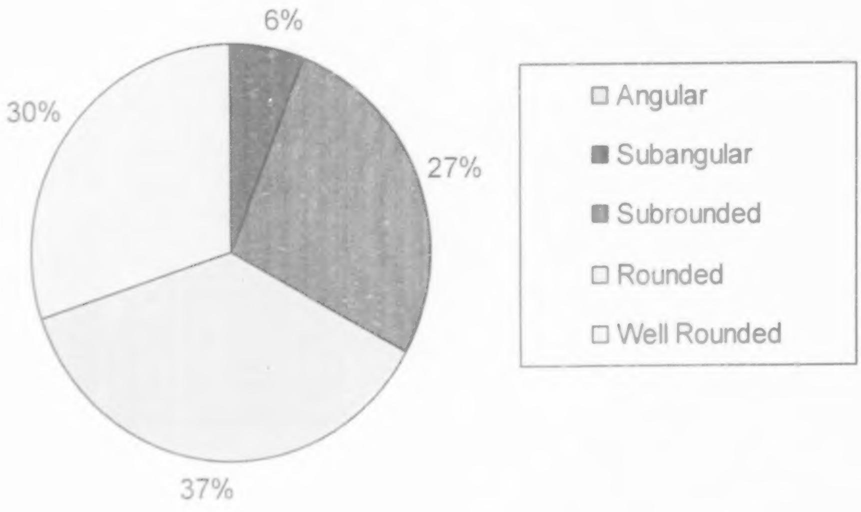


Sample # TW-133-02

Sphericity vs Particle Class Size

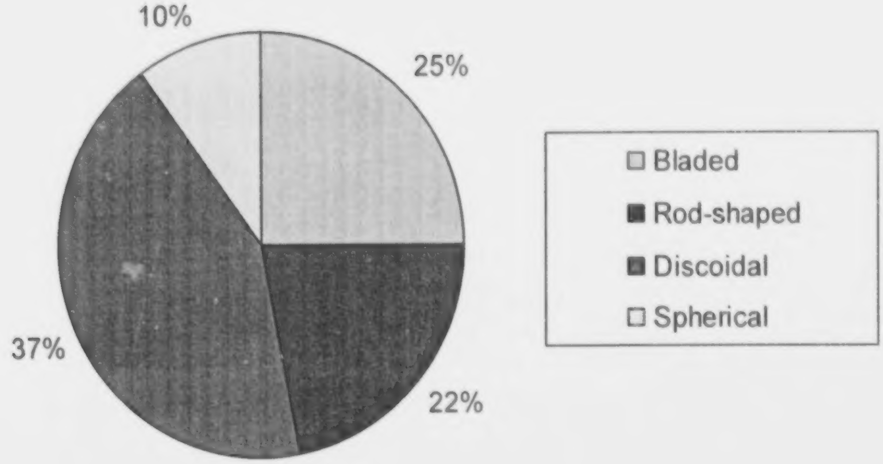


Average Roundness



Average = 0.680 (Rounded to Well Rounded)
Standard deviation = 0.179

Average Sphericity



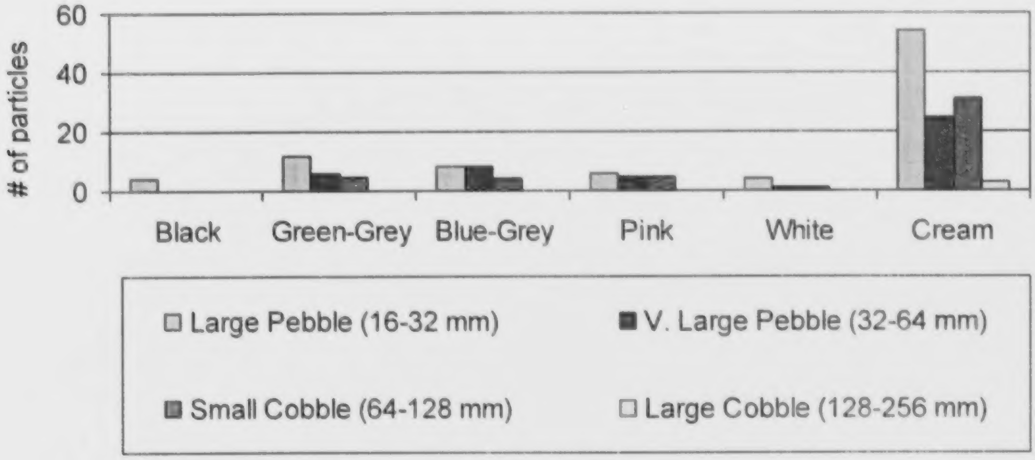
Average = 0.57 (Discoidal)
Standard deviation = 0.194

Color:

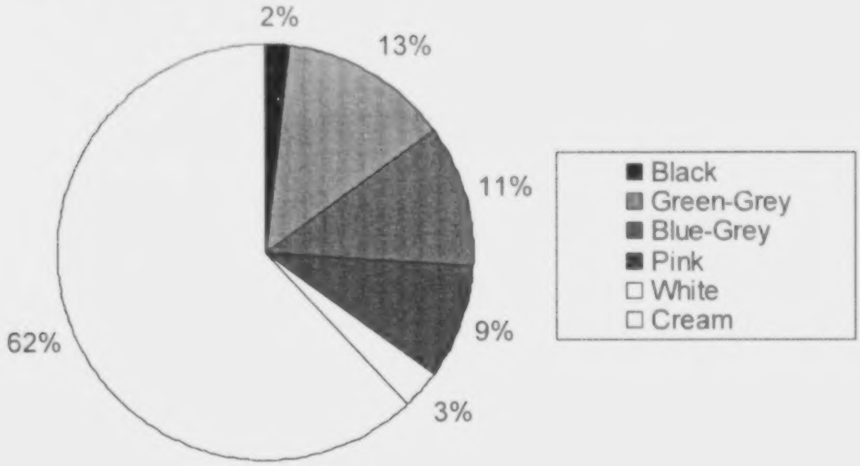
Sample # TW-133-02

	Limited (<2)	Several (2-4)	Many (>4)
Number of Different Colors			X

Color Classification vs Particle Class Size



Average Color Distribution



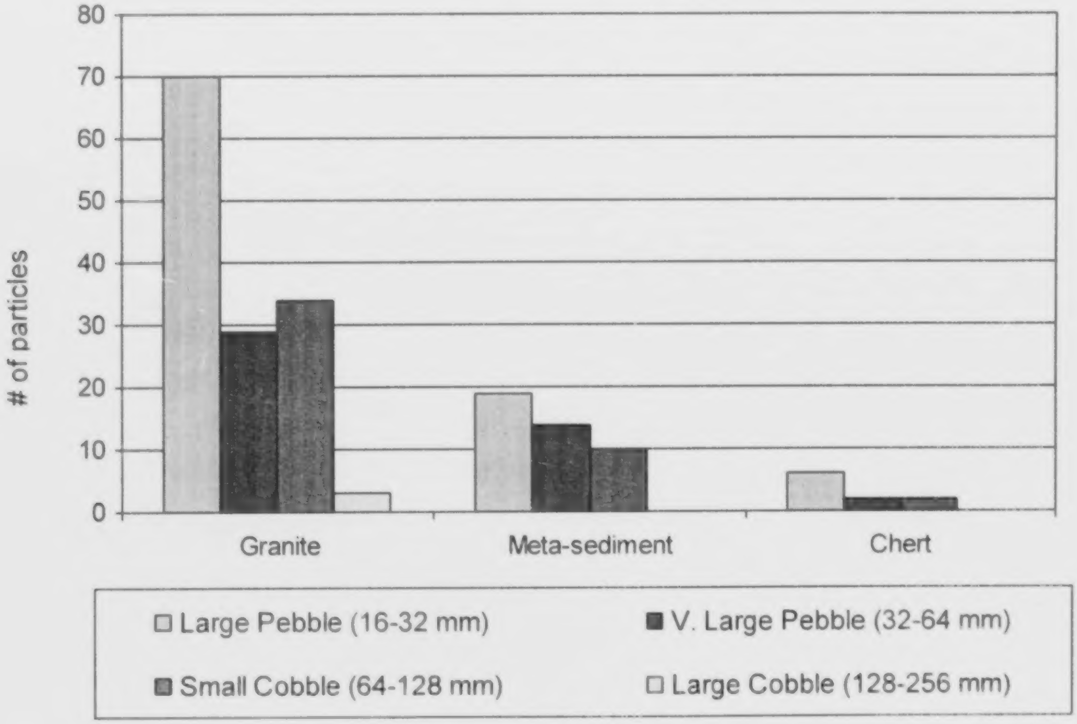
Rock Type:

Number of Different Textural Types

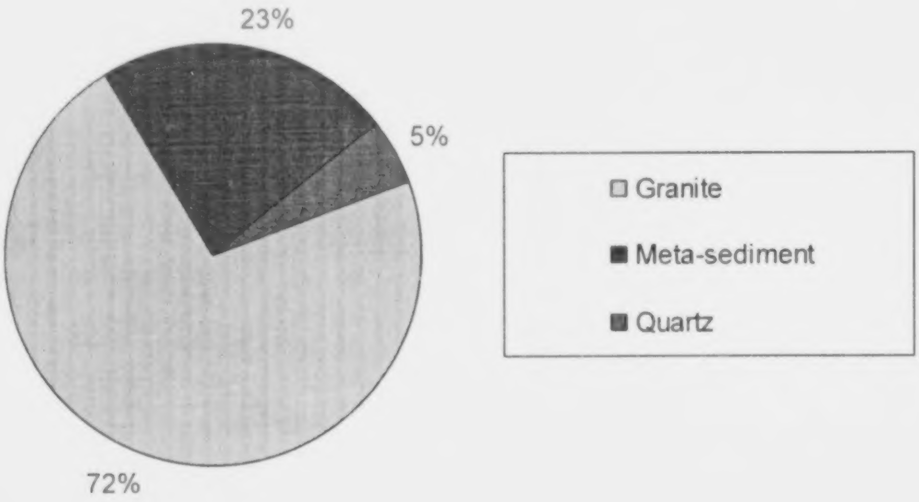
Sample # TW-133-02

Limited (<2)	Several (2-4)	Many (>4)
	X	

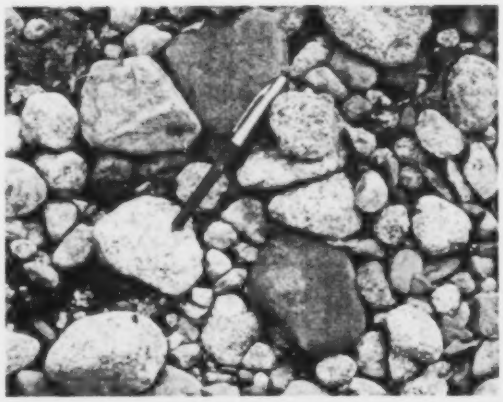
Rock Type vs Particle Class Size



Average Rock Type Distribution



Sample # TW-133-02



Large and very large granite pebble associated with sand and gravel resource near Little Duck Lake, southwestern part of York County, southwestern New Brunswick.

Comments: Sand and gravel resource with scattered zones of large to very large pebble and small cobble resource characterized by rounded to well rounded multi-colored granite with lesser amounts of meta-sedimentary rock.

Rated at a moderate potential (62%) (see Appendix D) for a source decorative material.

New Brunswick Crown Land Pebble, Cobble and Boulder Survey

Site Name: Moccasin Lake-West Branch Little Southwest Miramichi

Sample #: TW-139-02 **Year:** 2001

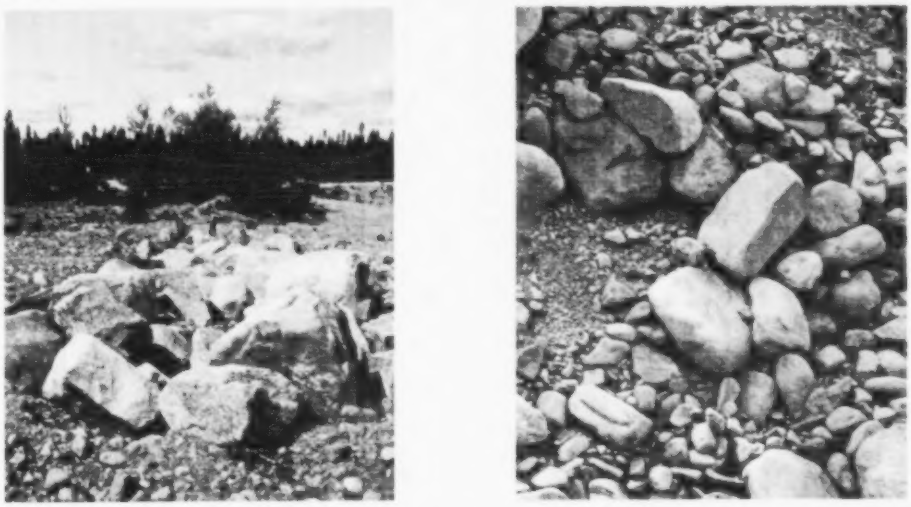
Location: NTS: 21 O/02 County: Northumberland

Latitude: 47° 00.426" Longitude: 66° 42.581"

Zone: 19 UTM Northing: 5208150 UTM Easting: 674250

Description: A small (< 2 ha) inactive pit, east and adjacent the Sears Lake Road, 500 m north of bridge crossing the West Branch Little Southwest Miramichi.

Sample # TW-139-02

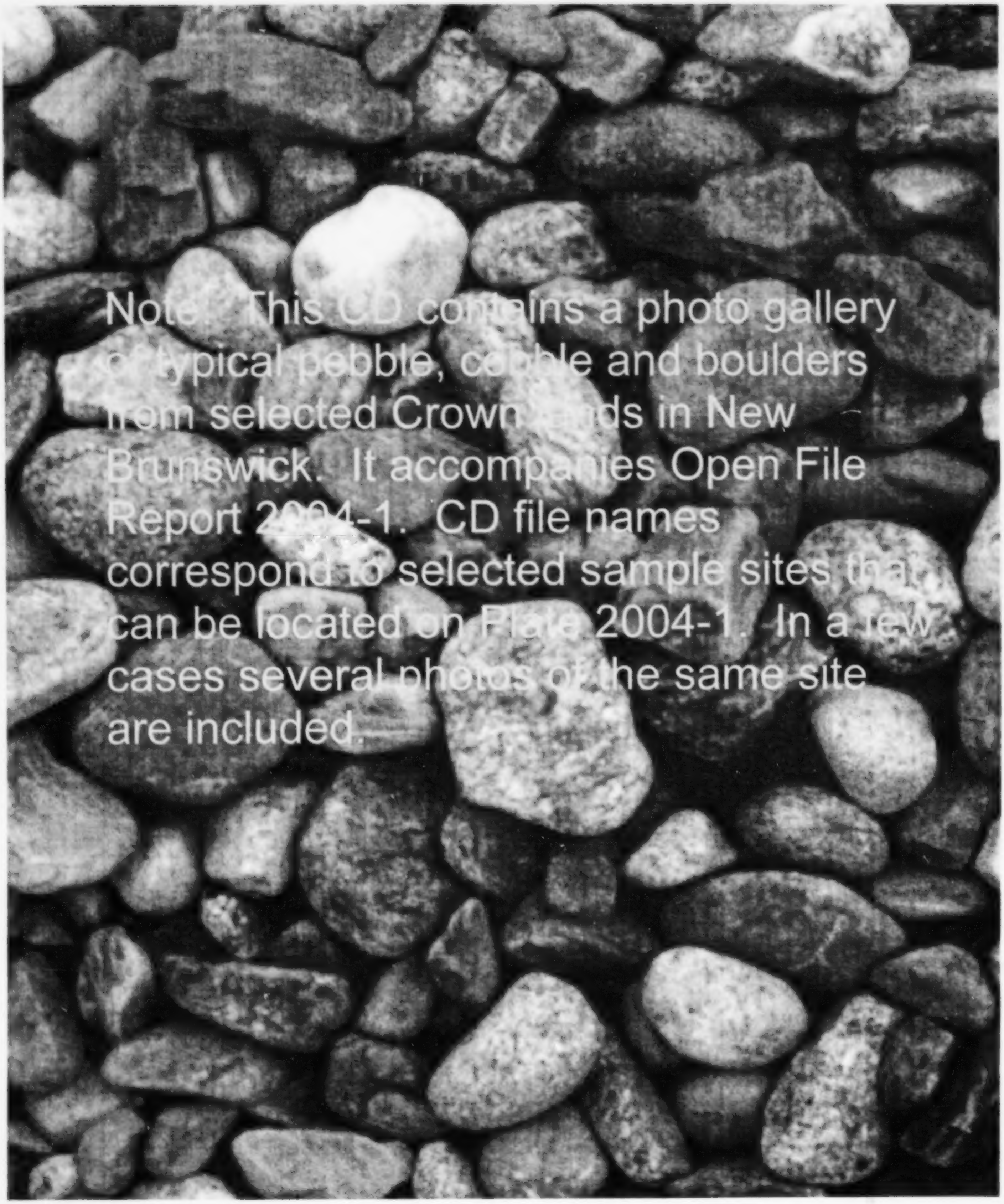


Boulders of augen granite with large to very large pebble and small to large cobbles of subrounded, meta-sedimentary rocks and granite, a few km north of Moccasin Lake, west-central part of Northumberland County, north-central New Brunswick.

Comments: Not Sampled. Material consisting of 30-40% large to very large pebble and small to large cobble, with 5-10% boulders of pinkish-banded, augen granite. Pebbles and cobbles are mostly subangular to subrounded grey meta-sedimentary rocks (65%), with pink (30%) and pinkish-banded augen granite (5-10%). Pit has been partly reclaimed. Unqualified development potential.

Appendix C

Digital photographs of selected decorative pebble, cobble and boulder resources from Crown lands in New Brunswick



Note: This CD contains a photo gallery of typical pebble, cobble and boulders from selected Crown Lands in New Brunswick. It accompanies Open File Report 2004-1. CD file names correspond to selected sample sites that can be located on Plate 2004-1. In a few cases several photos of the same site are included.

Appendix D

Development potential ratings for decorative pebble, cobble and boulder resources from selected Crown land prospects in New Brunswick (see Plate 2004-1 for location)

Sample # TW-002-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[1]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **34** (57%)

---

[1] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-006-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[2]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	**30-40**	20-30	10-20	<10

Rating (60) = **33** (55%)

---

[2] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-011-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	**30-50**	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	**<2**	-	2-4	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[3]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	**<10**

Rating score (60) =**38** (63%)

---

[3] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-23-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	**Large** 25-50	Very large 50-100	Extensive >100
Resource access[4]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **39** (65%)

---

[4] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-028-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	**<2**	-	2-4	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[5]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **41** (68%)

---

[5] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-29-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[6]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **40** (67%)

---

[6] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-30-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	**Large** 25-50	Very large 50-100	Extensive >100
Resource access[7]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **37** (62%)

---

[7] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-32-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[8]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	**75-50**	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **36** (60%)

---

[8] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-034A-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[9]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	50-25	**<25**
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	**<10**

Rating score (60) = **43** (72%)

---

[9] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-035-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[10]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **36** (60%)

---

[10] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-036-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	**10-30**	30-50	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	**Large** 25-50	Very large 50-100	Extensive >100
Resource access[11]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **38** (63%)

---

[11] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-37-01 (not sampled)

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[12]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **35** (58%)

---

[12] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-038-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[13]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **41** (68%)

---

[13] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road, (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-039-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[14]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	50-25	**<25**
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **49 (82%)**

---

[14] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-044-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	**30-50**	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[15]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	**75-50**	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	<10

Rating score (60) = **40** (67%)

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[15] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-045-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	**20-35**	35-50	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[16]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **38** (63%)

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[16] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-046-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[17]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **33** (55%)

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[17] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-047-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[18]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	**75-50**	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	**<10**

Rating score (60) = **45** (75%)

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[18] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-048-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	**20-35**	35-50	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[19]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **33** (55%)

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[19] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-049-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[20]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **36** (60%)

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[20] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-052-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[21]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **45** (75%)

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[21] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-054-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[22]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **47** (78%)

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[22] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-058-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	20-30	30-40	**>40**
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[23]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **44** (73%)

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[23] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-060-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[24]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	**75-50**	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **44** (73%)

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[24] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-068-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[25]	Poor	Fair	**Good**	Very Good	Excellent
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **40** (66%)

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[25] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-074-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[26]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	**30-40**	20-30	10-20	<10

Rating score (60) = **39** (65 %)

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[26] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-076-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[27]	Poor	Fair	**Good**	Very Good	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	**30-40**	20-30	10-20	<10

Rating score (60) = **37** (62%)

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[27] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-077-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[28]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	10-20	**<10**

Rating score (60) = **39** (65%)

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[28] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-078-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	**20-35**	35-50	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	**30-50**	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	**Large** 25-50	Very large 50-100	Extensive >100
Resource access[29]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **40** (67%)

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[29] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-079-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[30]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	>100	100-75	**75-50**	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **41** (68%)

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[30] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-091-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	**30-50**	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[31]	Poor	Fair	**Good**	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **34** (56%)

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[31] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-092-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	**20-35**	35-50	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[32]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **29** (48%)

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[32] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-093-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[33]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **33** (55%)

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[33] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-094-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[34]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **48** (80%)

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[34] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-097-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	**30-40**	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[35]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **39** (65%)

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[35] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-098-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	**Large** 25-50	Very large 50-100	Extensive >100
Resource access[36]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **38** (63%)

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[36] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-100-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[37]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **37** (62%)

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[37] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-109-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[38]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **35** (58%)

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[38] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-110-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[39]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	**30-40**	20-30	10-20	<10

Rating score (60) = **37** (61%)

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[39] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-112-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[40]	Poor	**Fair**	Good	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **31** (51%)

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[40] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-113-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[41]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **37** (61%)

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[41] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-114-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[42]	Poor	Fair	**Good**	Very Good	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **40** (67%)

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[42] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-116-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	**10-20**	20-30	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[43]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **33** (55%)

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[43] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-117-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	20-30	30-40	**>40**
% Very large pebble	**>40**	30-40	15-30	10-15	<10
% Large pebble	>40	30-40	15-30	10-15	**<10**
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[44]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	**30-40**	20-30	10-20	<10

Rating score (60) = 44 (73%)

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[44] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-118-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	20-30	**30-40**	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	>40	30-40	**15-30**	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[45]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **42** (70%)

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[45] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-121-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	50-65	**>65**
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	**30-40**	15-30	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	Very large 50-100	**Extensive** >100
Resource access[46]	Poor	Fair	Good	**Very Good**	Excellent
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **45** (75%)

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[46] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-123-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	50-70	**>70**
Sphericity (% discoidal and spherical)	<20	20-30	30-40	40-50	**>50**
# of colors	<2	-	**2-4**	-	>4
# of textures	<2	-	2-4	-	**>4**
Resource size (ha)	Very limited <10	Limited 10-25	Large 25-50	**Very large** 50-100	Extensive >100
Resource access[47]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	**>100**	100-75	75-50	50-25	<25
Proximity to nearest town, village or city (km)	**>40**	30-40	20-30	10-20	<10

Rating score (60) = **39** (65%)

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[47] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-124-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	35-50	**50-65**	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	**30-50**	50-70	>70
Sphericity (% discoidal and spherical)	<20	20-30	**30-40**	40-50	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	Very limited <10	**Limited** 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[48]	Poor	Fair	Good	Very Good	**Excellent**
Distance from U.S. border (km)	>100	**100-75**	75-50	50-25	<25
Proximity to nearest town, village or city (km)	>40	30-40	20-30	**10-20**	<10

Rating score (60) = **38** (63%)

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[48] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Sample # TW-133-01

Parameters	Rating scheme (parameter modifiers) point assignment				
	1	2	3	4	5
Particle size (% of sampled material >25.4 mm)	0-20	20-35	**35-50**	50-65	>65
% Cobble	<10	10-20	**20-30**	30-40	>40
% Very large pebble	>40	30-40	**15-30**	10-15	<10
% Large pebble	**>40**	30-40	15-30	10-15	<10
Roundness (% rounded and well rounded)	<10	10-30	30-50	**50-70**	>70
Sphericity (% discoidal and spherical)	<20	20-30	30-40	**40-50**	>50
# of colors	<2	-	2-4	-	**>4**
# of textures	<2	-	**2-4**	-	>4
Resource size (ha)	**Very limited** <10	Limited 10-25	Large 25-50	Very large 50-100	Extensive >100
Resource access[49]	Poor	Fair	**Good**	Very Good	Excellent
Distance from U.S. border (km)	>100	100-75	75-50	**50-25**	<25
Proximity to nearest town, village or city (km)	>40	30-40	**20-30**	10-20	<10

Rating score (60) = **37** (62%)

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[49] (1) Poor = remote location, > 30 km from main arterial (paved) road; (2) Fair, 15-30 km from main arterial (paved) road, (3) Good , 10-15 km from main arterial (paved) road; (4) Very good, 5-10 km from main arterial (paved) road; (5) Excellent = nearby, <5 km from main arterial road

Potential Resources of Decorative Pebbles, Cobbles and Boulders from Selected Crown Lands in New Brunswick

Plate 2004-1

Site # TW #	Deposit Name	Latitude	Longitude	County	NTS 21	Rating (100)
002-01	Alma	45°39.302	64°52.781	Albert	H/10	57
006-01	Crawford Lake	45°35.335	65°18.608	Kings	H/11	55
019-01	St. Martins	45°22.734	65°32.387	Saint John	H/05	63
020-01	Shogomoc Stream (site A)	45°58.921	67°16.784	York	G/14	nq
021-01	Shogomoc Stream (site B)	45°58.953	67°18.234	York	G/14	nq
023-01	Shogomoc	45°57.330	67°15.710	York	G/14	63
028-01	Black Brook (Magundy)	45°46.853	67°9.823	York	G/14	68
029-01	Mud Lake	45°50.120	67°12.083	York	G/14	67
030-01	Magundy Ponds	45°50.530	67°11.133	York	G/14	62
031-01	Little Pokiok Stream	45°51.427	67°11.079	York	G/14	nq
032-01	Lake Road	45°46.339	67°03.930	York	G/14	80
033-01	First Lake	45°36.148	67°25.497	York	G/11	nq
034A-01	White Beaver Brook (north) - McAdam	45°36.520	67°11.817	York	G/14	72
035-01	White Beaver Brook (south) McAdam	45°34.497	67°15.962	York	G/14	60
036-01	Thomaston-Brockway (north)	45°38.705	67°06.597	York	G/14	63
037-01	Thomaston-Brockway (central)	45°38.004	67°06.561	York	G/14	58
038-01	Thomaston-Brockway (south)	45°37.085	67°05.513	York	G/14	68
039-01	Basswood Ridge	45°22.734	67°32.387	Charlotte	G/06	82
043-01	McQuirks Mtn.	45°11.036	66°53.990	Charlotte	G/02	nr
044-01	Hanwell	45°43.790	66°50.295	York	G/15	67
045-01	Lyons Stream (north)	45°38.545	66°51.660	York	G/10	63
046-01	Lyons Stream (south)	45°37.892	66°50.713	York	G/10	55
047-01	Lee Hill	45°42.144	66°40.383	Sunbury	G/10	75
048-01	Otter Brook (south)	45°34.892	66°48.403	Sunbury	G/10	53
049-01	Otter Brook (north)	45°34.911	66°49.029	Sunbury	G/07	60
052-01	McDougall Lake	45°22.724	66°45.501	Charlotte	G/07	75
053-01	McDougall Lake Wally Bk	45°18.911	66°44.878	Charlotte	G/07	nq
054-01	Lee Settlement	45°17.124	66°45.111	Charlotte	G/07	78
055-01	Lee Settlement Pipeline (south)	45°17.112	66°46.829	Charlotte	G/07	nq
056-01	Lee Settlement Pipeline (north)	45°17.750	66°47.510	Charlotte	G/07	nq
057-01	Lee Settlement-McDougall Lake (west)	45°17.427	66°47.971	Charlotte	G/07	nq
058-01	Seely Lake	45°18.580	66°43.794	Charlotte	G/07	73
063-01	Anthony Lake	45°16.822	66°36.587	Charlotte	G/07	73
066-01	Cranberry Lake	45°16.404	66°42.639	Charlotte	G/07	nr
068-01	Victoria Lake	45°17.045	66°43.455	Charlotte	G/07	66
074-01	North Branch Lepreau River	45°19.820	66°31.432	Charlotte	G/07	65
076-01	Pomeroy (north)	45°24.375	66°56.019	Charlotte	G/07	62
077-01	Trout Lake	45°11.315	66°40.162	Charlotte	G/07	65
078-01	Jerry Pond	45°10.903	66°41.882	Charlotte	G/02	67

nq : pebble/cobble/boulder potential not quantified
nr : pebble/cobble/boulder potential not rated

Site # TW #	Deposit Name	Latitude	Longitude	County	NTS 21	Rating (100)
079-01	Little Pocologan River	45°10.608	66°37.231	Charlotte	G/02	68
083-01	Seven Mile Lake Road (Harwood Hills)	45°11.719	66°28.545	Charlotte	G/01	nr
091-01	West Branch Napudogan River	46°19.695	67°00.210	York	J/06	56
092-01	Narrows Mountain-Nashwaak River	46°17.092	67°01.270	York	J/06	48
093-01	Rocky Brook Lake	46°27.453	67°55.960	York	J/07	55
094-01	Miramichi Lake	46°27.876	67°00.937	York	J/07	60
097-01	Devils Back Bk	46°51.058	67°02.381	Northumberland	J/16	65
098-01	Renous Forks	46°47.819	67°10.706	Northumberland	J/16	63
099-01	North Branch Renous River	46°47.738	67°11.391	Northumberland	J/15	nr
100-01	South Branch Dungarvon River	46°48.491	67°37.588	Northumberland	J/15	62
108-01	Loggie Lodge	46°57.486	66°31.638	Northumberland	J/15	nq
109-01	Tuadook Little Southwest Miramichi River	46°57.812	66°34.720	Northumberland	J/15	58
110-01	Big Hole Lake (north)	46°38.212	66°16.853	Northumberland	J/09	61
111-01	Mullins Stream Road	47°08.633	66°59.181	Northumberland	J/16	nr
112-01	North Branch Big Sevogle River (south)	47°07.713	65°58.984	Northumberland	J/09	51
113-01	Sevogle	47°05.024	65°52.718	Northumberland	O/01	61
114-01	Big Sevogle River (north)	47°02.961	65°53.514	Northumberland	O/01	67
116-01	Bois Gagnon	47°29.761	65°12.413	Gloucester	P/08	55
117-01	Middle Landing	47°25.082	65°42.144	Gloucester	P/05	73
118-01	Blue Mountain	47°31.058	65°43.151	Gloucester	P/12	70
121-01	Trout Lake Bk	46°21.590	65°43.506	Kent	I/05	75
122-01	South Lake	46°39.345	65°31.958	Northumberland	I/12	nr
123-01	Dunns Lake	46°35.181	65°35.000	Northumberland	I/12	55
124-01	Valley Forest Road	46°07.886	66°07.084	York	J/03	63
133-01	South Branch Cranberry Bk	45°41.450	67°16.466	York	G/11	62
139-01	Moccasin Lake-West Branch Little Southwest Miramichi River	47°00.428	66°42.581	Northumberland	O/02	nq